

ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY

100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

**MINUTES OF THE 36TH REGULAR MEETING OF THE
ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY'S
BOARD OF DIRECTORS
LITTLE ROCK, ARKANSAS
MAY 19, 1989**

CALL TO ORDER

The meeting was called to order at 1:35 p.m. by Dr. Joe Nix, chairman of the Board, in the conference room of the Department of Higher Education, Little Rock, Arkansas.

A quorum of Board members was present and included Mr. William Bowen, Dr. Paul Marion, Mr. Harry Truman Moore, Dr. Donald Pederson, Mr. Louis Ramsay, Dr. Winfred Thompson, Mr. John Troutt, Mr. Jerry Webster, Dr. William Willingham.

Visitors attending the meeting included Mr. Phil Price of the Governor's Office.

Authority's executive staff attending the meeting included Dr. John Ahlen, Mr. Jim Benham, Dr. Joe Gentry, Ms. Alice Rumph Smith, with additional staff attending including Katherine Benefield, Megan Delamar, Alan Gumbel, Andrea Harter, Anita Millard, Chuck Myers, and Cassie Tavorn.

APPROVAL OF MINUTES

Dr. Nix presented the minutes from the January 20, 1989 meeting for approval. Mr. Bowen moved the minutes be approved. Dr. Pederson seconded the motion; the Board gave its unanimous approval.

PRESIDENT'S REPORT

Dr. Ahlen directed the Board's attention to the President's Report. Adding to the report, Dr. Ahlen stated that he met with Dr. Elders and several senior staff members of the Department of Health regarding the development of the science and technology corridor. Dr. Elders asked Dr. Ahlen to report to the Board the Health Department's pledge of

support for any state involvement in the corridor project. The Department of Health has been added to the list of cooperating state agencies for corridor development.

In addition Dr. Ahlen reported that he just returned from participating in the Southern Technology Council (STC) trip to Europe. The Council received a German Marshall Fund Grant to assist participating STC members from southern states in studying how European countries are dealing with the development of new technology. Dr. Ahlen stated that a full report would be made on the trip to the Council and that report would be available at a later date.

Dr. Ahlen introduced the Authority's new staff members. Ms. Andrea Harter accepted the position of Communications Manager, and Ms. Anita Millard accepted the position of Fiscal Officer.

Dr. Ahlen reported that Alan Gumbel would be leaving the Authority. Mr. Gumbel accepted a position with the Lower Mississippi River Delta Commission as planner for the Commission's staff. Dr. Ahlen stated that Mr. Gumbel has been an asset to the Authority and he will be missed. Mr. Bowen moved that the Board extend its appreciation to Mr. Gumbel for his invaluable contribution to the Authority. The Board gave its unanimous approval and extended best wishes to Mr. Gumbel in his new position with the Delta Commission.

EPSCOR Coalition

Mr. Bowen reported that the Board has been invited to help Dr. Dave Straub raise Arkansas' goal of \$10,000 in support of the EPSCoR Coalition. Dr. Ahlen stated that each of the 17 states in the EPSCoR Coalition raised \$10,000 last year from private sources to retain a consultant in Washington, D.C. to lobby for the EPSCoR Program at the National Science Foundation as part of an effort to broaden geographic distribution of federal R & D dollars. Alice Smith explained that the lobbying effort will address taking the EPSCoR concept to the Department of Defense, the Department of Energy, and try to broaden it throughout the federal government and not just in NSF. Dr. Gentry stated that the National Science Foundation fully supports the efforts of the Coalition. The Coalition's next meeting is on June 5 & 6 in Washington, D.C., and Dr. Straub to date has not been successful in raising the entire \$10,000 from Arkansas.

Mr. Bowen moved that the Board began to look for ways and means, and endorse support from the public and private sector to help raise the \$10,000 needed as Arkansas' contribution to the EPSCoR Coalition. Dr. Pederson seconded the motion; the Board gave its unanimous approval.

INVESTMENT COMMITTEE REPORT

Mr. Moore called the Board's attention to the Investment Fund Report for the quarter ending March 31, 1989, and to the FY 1989 Third Quarter Expenditure Report. Mr. Moore stated there are no seed capital investment fund monies invested in any institution in which a Board member has any interest or ownership. There being no questions concerning the reports, Mr. Moore moved for approval of both reports. Mr. Ramsay seconded the motion; the Board gave its unanimous approval.

Mr. Moore stated that the Investment Committee met on May 9, and again on May 19, 1989. (Appendix 1, Investment Committee Minutes, May 9, 1989; Appendix 2, Investment Committee Minutes, May 19, 1989) The Investment Committee recommends for approval the following draft resolutions.

Draft Resolution No. 89-20

Draft Resolution No. 89-20 provides for the seed capital investment of monies in Emerging Technologies, Inc. (application project 89-S-0001) in an amount not to exceed \$200,000, provided that ETI meets the contingencies stated in the Resolution. Mr. Moore moved for approval of the resolution. Mr. Bowen seconded the motion; the Board gave its unanimous approval. (Appendix 3, Resolution No. 89-20)

Draft Resolution No. 89-21

Draft Resolution No. 89-21 provides for the seed capital investment of monies in Electromap, Inc. (application project 89-S-0004) in an amount not to exceed \$30,000, provided that Electromap meets the contingencies stated in the resolution. Mr. Moore moved for approval of the resolution. Mr. Ramsay seconded the motion; the Board gave its unanimous approval. (Appendix 4, Resolution No. 89-21)

Draft Resolution No. 89-22

Draft Resolution No. 89-22 provides for the seed capital investment of monies in N-Cor Technologies, Inc. (application project 88-S-0010) in an amount not to exceed \$200,000, provided that N-Cor fulfills the contingencies stated in the resolution. Mr. Moore explained that N-Cor was formerly RES., Inc. that was approved for seed capital investment under Resolution No. 89-17, but a new resolution is needed since RES., Inc. has restructured as N-Cor. Mr. Moore stated that the Investment Committee recommended approval of Draft Resolution No. 89-22 provided that favorable counsel is received that no contingent liabilities remain with respect to RES., Inc. which could impact on N-Cor and adversely affect the Authority's investment. Mr. Moore stated that counsel has determined that no contingent liabilities remain with respect to RES., Inc.

With this clarification, Mr. Moore moved for approval of Resolution No. 89-22. Mr. Webster seconded the motion; the Board gave its unanimous approval. (Appendix 5, Resolution No. 89-22)

PLANNING COMMITTEE REPORT

Mr. Troutt stated the Planning Committee met on April 17 (Appendix 6, Planning Committee Minutes, April 17, 1989) and recommends Draft Resolution No. 89-15 for the Board's consideration and approval.

Draft Resolution No. 89-15

Draft Resolution 89-15 provides the basis of a plan for the Business Incubator Program for fiscal years 1989, '90, and '91. Mr. Troutt moved for approval of the resolution. Dr. Thompson seconded the motion; the Board gave its unanimous approval. (Appendix 7, Resolution No. 89-15)

The Planning Committee met again on May 19 (Appendix 8, Planning Committee Minutes, May 19, 1989) to discuss the Proposed Rules for Centers for Applied Technology. Mr. Troutt directed the Board's attention to the proposed rules and stated that the Planning Committee recommends approval of the proposed rules with the following revisions:

Section 2.1.2 "Colleges and Universities" shall mean those **state-supported or independent, not for profit institutions of higher education in Arkansas which offer degrees at the baccalaureate level or higher.**

Section 5.1.5 The ability and willingness to cooperate with the Authority, the Arkansas Industrial Development Commission, **the Arkansas Department and Board of Higher Education,** and other economic development agencies in promoting the growth and development in Arkansas of enterprises based upon or benefiting from the areas of technology involved.

* (revisions are in boldface type)

With these revisions, Mr. Troutt moved for approval of the Centers for Applied Technology Program Rules. Mr. Bowen seconded the motion; the Board gave its unanimous approval. (Appendix 9, Centers for Applied Technology Program Rules)

(The program rules will be sent to the Chairman of the Board on Higher Education to satisfy a statutory requirement that the Authority consult with the Board on Higher Education on these rules.)

RESEARCH COMMITTEE REPORT

Dr. Willingham stated the Research Committee and the Science Advisory Committee met jointly on April 26 (Appendix 10, Science Advisory Committee Minutes, April 26, 1989), and in discussing the research grant program recommended that an honorarium be provided to outside reviewers of research proposals. Therefore, the Research Committee recommends for the Board's approval that a \$50.00 honorarium be provided reviewers at the discretion of staff. The Committee agrees that the honorarium will help speed the turn around time for outside reviews of proposals. Dr. Willingham moved for approval of the motion. Dr. Pederson seconded the motion; and the Board gave its unanimous approval.

Dr. Willingham stated the Research Committee met again on May 17 (Appendix 11, Research Committee Minutes, May 17, 1989) to discuss energy-related proposals. The Committee considered seven proposals, and recommended funding one applied and three basic research grant proposals.

Draft Resolution No. 89-17

Draft Resolution No. 89-17 provides approval for the funding of two basic research grant proposals:

PROPOSAL NO. 9-EB-050, "Heat and Moisture Transfer in Multi-layer Walls," by Dr. Rick J. Couvillion of the University of Arkansas at Fayetteville in the amount of \$43,780; and

PROPOSAL NO. 9-EB-051, "Detection of Atomic Hydrogen by Magnetic Resonance in Optically Pumped Flames," by Dr. Rajendra Gupta of the University of Arkansas at Fayetteville in the amount of \$15,392.

Dr. Pederson stated that these proposals are from the university of his affiliation. Dr. Willingham moved for the approval of Resolution No. 89-17. Mr. Ramsay seconded the motion; the Board gave its unanimous approval. (Appendix 12, Resolution No. 89-17)

Draft Resolution No. 89-18

Draft Resolution No. 89-18 provides approval for the funding of one basic research grant proposal:

PROPOSAL 9-EB-042, "Energy Conservation and Indoor Air Quality Control," by Dr. Malay K. Mazumder of the University of Arkansas at Little Rock in the amount of \$38,487.

Dr. Willingham moved for approval of Resolution No. 89-18. Mr. Bowen seconded the motion; the Board gave its unanimous approval. (Appendix 13, Resolution No. 89-18)

Draft Resolution No. 89-19

Draft Resolution No. 89-19 provides approval for the funding of one applied research grant proposal:

PROPOSAL NO. 9-EA-027, "Investigation of Energy-Efficient Refrigerator Design," by Dr. Burton Henderson of the University of Arkansas at Little Rock in the amount not to exceed \$11,652. This project is cosponsored by American Dixie, Inc. in the amount of \$6,026.

Dr. Willingham moved for approval of Resolution No. 89-19. Dr. Pederson seconded the motion; the Board gave its unanimous approval. (Appendix 14, Resolution No. 89-19)

Dr. Willingham presented for the Board's consideration the draft guidelines for both the Applied and Basic Research Grant programs. Dr. Gentry stated that an additional item was added to the Applied Research Guidelines which requires a letter from the cooperating industry or other source committing the required matching funds pending the awarding of the ASTA grant. Dr. Gentry stated that the Basic Research Guidelines would have two proposal solicitation periods, with the first submission deadline being October 15, 1989 and the second submission deadline being February 15, 1990.

Mr. Troutt moved for approval of both the Applied and Basic Research Grant Program Guidelines. Mr. Bowen seconded the motion; the Board gave its unanimous approval. (Appendix 15, Applied Research Grant Program Guidelines; Appendix 16, Basic Research Grant Program Guidelines)

OLD BUSINESSCoordination of State Agency
Efforts in Economic Development

Alan Gumbel stated the project will concentrate on the duplication of services by three different types of organizations: (1) colleges and universities, (2) state agencies, and (3) state administered programs (i.e., Job Training Partnership Act). Contacts have been made to do the research for the state and it should be completed by the fall.

Science and Technology Corridor

Alice Smith gave an update on the National Biotechnology Cooperative effort in Congress. Ms. Smith said Senator Bumpers received a letter from the Office of Management and Budget that denied any problem on their part with Food and Drug Administration (FDA) spending the \$3 million for the

NBC project at NCTR in fiscal year 1989. As a result Senator Bumpers included language in the supplemental appropriations bill that requires the FDA to spend that money in fiscal year 1989. With the fiscal year almost over, it is hoped that at least the first \$500,000 will be received to start the feasibility study. In addition, the appropriations process for fiscal year 1990 has begun. The 1990 appropriation, again, contains language that requires the FDA to spend the allotted funds on the NBC project during the 1990 fiscal year. Another encouraging item is the FDA Revitalization Act. It is a bill with massive spending authorizations, and Title 5 of the bill is the National Biotechnology Cooperative. The bill authorizes \$10 million for the NBC project; this should firm up the likelihood that \$3 million will be forthcoming for the project.

NEW BUSINESS

-Draft Resolution No. 89-16

Dr. Ahlen presented Draft Resolution No. 89-16 which provides for the establishment of an Ad Hoc Nominating Committee consisting of not more than three past chairmen of the Board whose purpose is to meet and propose a slate for the annual elections. The members of the Ad Hoc Nominating Committee are Mr. Bowen, Mr. Ramsay, and Dr. Thompson. Dr. Pederson moved that Resolution No. 89-16 be approved. Mr. Webster seconded the motion; the Board gave its unanimous approval. (Appendix 17, Resolution No. 89-16)

Next Meeting Date

Dr. Nix stated the next Board meeting is set for September 15, 1989.

Dr. Pederson extended an invitation to the Board from the UAF Chancellor to hold a meeting of the Board on the UAF campus in October during the Legislative Weekend activities. Dr. Pederson added that the invitation would be contingent on UAF's ability to develop a beneficial and worthwhile program for the Legislative Weekend activities, and suggested the October meeting could either replace or be in addition to the September Board of Directors meeting.

The Board agreed to accept UAF's invitation contingent on UAF's development of the Legislative Weekend activities.

Unused Funds from the '87-'89 Biennium

Dr. Ahlen reported that at the end of the biennium there will likely be some monies available (for example, from the incubator and research funds) that will expire if not used before the end of the fiscal year, June 30, 1989. Dr. Ahlen

asked the Board to consider a motion that would allow the Authority to route whatever monies are available from the funds that will expire at the year's end toward approved projects. This motion will provide the Authority some additional funding in the next biennium's budget for new projects. Dr. Thompson moved for approval of the motion. Dr. Pederson seconded the motion; the Board gave its unanimous approval.

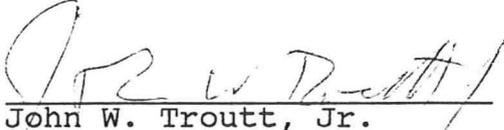
ADJOURNMENT

There being no further business, the meeting adjourned.

Respectfully submitted,

John W. Troutt, Jr.
Secretary
Board of Directors

Approved by the Board of Directors
on this 15th day of September, 1989.


John W. Troutt, Jr.
Secretary
Board of Directors

JWT:kb

APPENDICES

- ✓1. Minutes, Investment Committee, May 9, 1989
- ✓2. Minutes, Investment Committee, May 19, 1989
- ✓3. Resolution 89-20
- ✓4. Resolution 89-21
- ✓5. Resolution 89-22
- ✓6. Minutes, Planning Committee, April 17, 1989
- ✓7. Resolution 89-15
- ✓8. Minutes, Planning Committee, May 19, 1989
- ✓9. Program Rules, Ctrs. for Applied Technology
- ✓10. Minutes, Science Advisory Committee, April 26, 1989
- ✓11. Minutes, Research Committee, May 17, 1989
- ✓12. Resolution 89-17
- ✓13. Resolution 89-18
- ✓14. Resolution 89-19
- ✓15. Applied Research Grant Program Guidelines
- ✓16. Basic Research Grant Program Guidelines
- ✓17. Resolution 89-16

M I N U T E S

**INVESTMENT COMMITTEE MEETING
THE TECHNOLOGY CENTER, SUITE 400
MAY 9, 1989**

CALL TO ORDER

In the absence of committee chairman Mr. H. T. Moore, Mr. William Bowen called the meeting to order at 1:45 p.m. Present were Mr. Jerry Webster, Mr. Louis Ramsay, Mr. James Benham, Ms. Megan DeLamar, and Ms. Jamie Wise of the Arkansas Democrat.

OLD BUSINESS

Status reports were given for Micoil Corp., RES, Inc., Energy Techniques, and Nthography.

The committee approved Mr. Benham's request for a letter to Mr. Don Bone of First State Bank in Conway that would state their awareness of Mr. Bone's efforts to obtain proceeds from the sale of Micoil Corp.'s assets to repay loans from the bank and ASTA, and authorize him to proceed on a "best efforts" basis.

Mr. Benham reported that RES, Inc., has become a new corporation, N-Cor Technologies, Inc., at the advice of their attorney. The new company is seeking to raise equity capital to meet the Authority's condition of matching funds. The company is requesting another extension to arrange this financing.

Mr. Benham stated that he had received a letter from Southern Development Bank initiating discussion regarding a joint investment with ASTA in Energy Techniques.

Mr. Benham informed the group that Nthography has signed two new sales dealerships and is still struggling to survive.

NEW BUSINESS

Three presentations were made to the Committee by companies seeking an investment from the Seed Capital Investment Program.

May 9, 1989

The first company to appear before the Committee was Emerging Technologies, Inc., of Little Rock. Mr. Acie Johnson, Mr. J. Turner Lloyd, Mr. Joe Mullen, and Mr. Glen Prentice gave the presentation. Demonstrations were given of a glass tube helium gas laser used as a sight, the LA1000, and a prototype of their new product, the solid state diode laser, LA-1.

Next, Mr. Roger Thurmond, founder of Thurmond Corporation, gave a presentation on the Thurmond Air Quality System. Mr. Thurmond discussed the problem of indoor air pollution and the merits of his system to solve it.

Lastly, Richard and Joan Smith of Fayetteville showed the committee members their latest product, the electronic World Atlas.

It was decided that action on these proposals would be deferred until the date of the next Board of Directors' meeting, May 19, 1989.

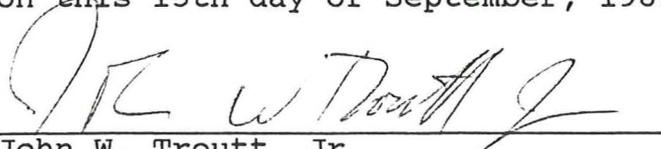
ADJOURNMENT

The meeting was adjourned at 3:00 p.m.

Respectfully submitted,

Megan DeLamar by Jacqueline Bradshaw
Megan DeLamar
Finance Program Manager

Approved by the Board of Directors
on this 15th day of September, 1989.


John W. Troutt, Jr.
Secretary
Board of Directors

M I N U T E S

**INVESTMENT COMMITTEE MEETING
DEPARTMENT OF HIGHER EDUCATION
LITTLE ROCK, ARKANSAS
MAY 19, 1989
12:30 P.M.**

CALL TO ORDER

Mr. H.T. Moore, Chairman of the Investment Committee, called the meeting to order at 12:30 p.m. Present were Mr. Bill Bowen, Mr. Louis Ramsay, Mr. Jerry Webster, Mr. James Benham, and Ms. Megan DeLamar.

OLD BUSINESS

Mr. Benham reported that he is working with Don Bone of State First Bank of Conway regarding the disposal of Micoil Corporation's assets. Status reports were given on N-Cor (formerly RES, Inc.), Emerging Techniques, Inc., and Nthography.

NEW BUSINESS

Discussions were held by committee members about Emerging Technologies, Inc., Thurmond Corporation, and Electromap, Inc. Investments were approved for Emerging Technologies, Inc. and Electromap, Inc. of \$200,000 and \$30,000, respectively. Committee members also approved a conditional investment in N-Cor (formerly RES, Inc.).

ADJOURNMENT

The meeting was adjourned at 1:30 p.m.

Respectfully submitted,

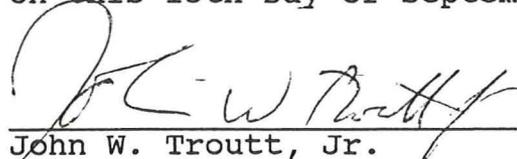
James T. Benham by *Jacqueline Bradshaw*

James T. Benham
Vice President Finance

JTB:mm

MINUTES, INVESTMENT COMMITTEE
Page 2
May 19, 1989

Approved by the Board of Directors
on this 15th Day of September, 1989.



John W. Troutt, Jr.
Secretary
Board of Directors

**ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY**

100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

RESOLUTION NO. 89-20

PROVIDING FOR THE SEED CAPITAL INVESTMENT OF MONIES FROM THE INVESTMENT FUND OF THE AUTHORITY IN A TECHNOLOGY-BASED ENTERPRISE IN ARKANSAS.

WHEREAS, Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated authorizes the Authority to participate in the initial capitalization of technology-based enterprises through purchases of their qualified securities;

WHEREAS, pursuant to its enabling legislation, the Authority has created the Seed Capital Investment Program (the "Program") to foster the formation and development of innovative, technology-based business enterprises that will stimulate the economy of Arkansas through increased employment and leveraging of private investment;

WHEREAS, Emerging Technologies, Inc. has submitted an application under the Program requesting an investment in the amount of \$200,000 to provide a portion of the company's working capital;

WHEREAS, Emerging Technologies, Inc.'s initial capitalization requires a total of \$1,250,000 of which \$600,000 has been contributed by shareholders, \$450,000 will come from an SBA-guaranteed loan, and \$200,000 will come from the Authority;

WHEREAS, Emerging Technologies, Inc. qualifies as an "enterprise" as defined by the Authority's enabling legislation, in that its principal place of business is located in Little Rock, Arkansas, and it proposes to engage in manufacturing products incorporating a significant amount of technology;

WHEREAS, based upon Emerging Technologies, Inc.'s application and the results of an investigation conducted by the Authority's staff, the Board hereby finds that:

- (1) the proceeds of the requested investment will be used only to cover a portion of Emerging Technologies, Inc.'s initial capitalization,
- (2) Emerging Technologies, Inc. has a reasonable chance of success,
- (3) the Authority's participation in Emerging Technologies, Inc.'s initial capitalization is necessary to the company's success because sufficient funding is unavailable in the traditional capital markets or, if available, could be obtained only on terms that would substantially hinder the company's prospects for success,
- (4) Emerging Technologies, Inc.'s Project has the reasonable potential to create primary employment within Arkansas,
- (5) Emerging Technologies, Inc.'s principals have committed to make substantial financial and time commitments to the Project,
- (6) the investment requested by Emerging Technologies, Inc. will constitute a "qualified security" under the Authority's enabling legislation,
- (7) there is a reasonable possibility that the Authority will recoup at least its initial investment in Emerging Technologies, Inc.,
- (8) Emerging Technologies, Inc. will enter into binding commitments with the Authority to supply such financial and other data as are required under the Authority's enabling legislation and to submit to such management control on the part of the Authority as the Board, through its Investment Committee, deems prudent for the protection of the Authority's investment, and,

WHEREAS, Emerging Technologies, Inc.'s application for an investment complies in all respects with the requirements of the Authority's enabling legislation and the rules governing the Program;

NOW THEREFORE, BE IT RESOLVED:

THAT the application Project No. 89-S-0001 of Emerging Technologies, Inc. for an initial capitalization investment in its proposed science and technology project in the amount not to exceed \$200,000 is hereby approved; provided, however, that prior to the Authority's disbursement of investment proceeds, Emerging Technologies, Inc. shall:

- (1) provide proof of its incorporation under the laws of the State of Arkansas,
- (2) provide documentation proving that the company's principals have invested \$600,000 in the company to date,
- (3) obtain financing or binding commitments for financing from sources other than the Authority in an amount not less than \$450,000; which monies shall be applied to the Project,
- (4) sign a declaration of intent, which shall be provided by the Authority, to retain its principal place of business in Arkansas,
- (5) provide all financial statements requested by the Authority and have ready a system to deliver future statements at predetermined intervals,

all of which shall be provided or done to the Authority's satisfaction within ninety (90) days of the Board's approval of this resolution.

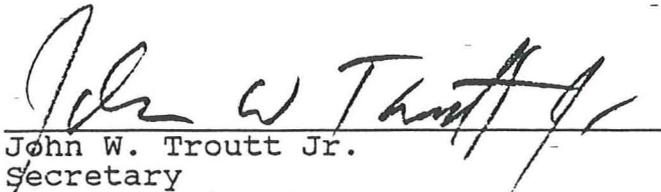
THAT the Investment Committee of the Board is hereby authorized on behalf of the Authority to prepare investment documents covering the transaction authorized hereby, which documents shall meet all requirements contained in the Authority's enabling legislation and shall include such provisions as, in the judgement of the Committee, are necessary or desirable to protect the Authority's investment in Emerging Technologies, Inc. The Committee is further authorized on behalf of the Authority to negotiate with Emerging Technologies, Inc. such terms and conditions as are appropriate to the investment authorized hereby.

THAT the President of the Authority is hereby authorized on behalf of the Authority to execute and deliver all documents relating to the investment authorized hereby.

BE IT FURTHER RESOLVED:

THAT all of the above policies are subject to the action of the Board of Directors within the framework established by Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated.

APPROVED by the Board of Directors
on this 19th day of May, 1989.



John W. Troutt Jr.
Secretary
Board of Directors

**ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY**

100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

RESOLUTION NO. 89-21

PROVIDING FOR THE SEED CAPITAL INVESTMENT OF MONIES FROM THE INVESTMENT FUND OF THE AUTHORITY IN A TECHNOLOGY-BASED ENTERPRISE IN ARKANSAS.

WHEREAS, Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated authorizes the Authority to participate in the initial capitalization of technology-based enterprises through purchases of their qualified securities;

WHEREAS, pursuant to its enabling legislation, the Authority has created the Seed Capital Investment Program (the "Program") to foster the formation and development of innovative, technology-based business enterprises that will stimulate the economy of Arkansas through increased employment and leveraging of private investment;

WHEREAS, Electromap, Inc. has submitted an application under the Program requesting an investment in the amount of \$30,000 to provide a portion of the capital required for a research and development project;

WHEREAS, Electromap, Inc.'s proposed research and development project is a science and technology project (the "Project") and the projected capital needs will be \$55,200, of which \$30,000 will be provided by the proposed ASTA investment and \$25,200 represents equity capital invested by the three principals of the company;

WHEREAS, Electromap, Inc. qualifies as an "enterprise" as defined by the Authority's enabling legislation, in that its principal place of business is located in Fayetteville, Arkansas, and it proposes to engage in the design, production, and marketing of electronic atlases;

WHEREAS, based upon Electromap, Inc.'s application and the results of an investigation conducted by the Authority's staff, the Board hereby finds that:

- (1) the proceeds of the requested investment will be used only to cover a portion of Electromap, Inc.'s capitalization of the research and development project,
- (2) Electromap, Inc.'s proposed Project has a reasonable chance of success,
- (3) the Authority's participation in the initial capitalization of Electromap, Inc.'s Project is necessary to the Project's success because sufficient funding is unavailable in the traditional capital markets or, if available, could be obtained only on terms that would substantially hinder the Project's prospects for success,
- (4) Electromap, Inc.'s Project has the reasonable potential to create primary employment within Arkansas,
- (5) Electromap, Inc.'s principals have committed to make substantial financial and time commitments to the Project,
- (6) the investment requested by Electromap, Inc. will constitute a "qualified security" under the Authority's enabling legislation,
- (7) there is a reasonable possibility that the Authority will recoup at least its initial investment in Electromap, Inc.'s Project,
- (8) Electromap, Inc. will enter into binding commitments with the Authority to supply such financial and other data as are required under the Authority's enabling legislation and to submit to such management control on the part of the Authority as the Board, through its Investment Committee, deems prudent for the protection of the Authority's investment, and,

WHEREAS, Electromap, Inc.'s application for an investment complies in all respects with the requirements of the Authority's enabling legislation and the rules governing the Program;

NOW THEREFORE, BE IT RESOLVED:

THAT the application Project No. 89-S-0004 of Electromap, Inc. for an initial capitalization investment in its proposed science and technology project in the amount not to exceed \$30,000 is hereby approved subject to Investment Committee approval of due diligence to be completed by the Authority's staff; provided, however, that prior to the Authority's disbursement of investment proceeds, Electromap, Inc. shall:

- (1) provide proof of its incorporation under the laws of the State of Arkansas,
- (2) demonstrate that the company's principals have contributed \$25,200 in start-up capital,
- (3) sign a declaration of intent, which shall be provided by the Authority, to retain its principal place of business in Arkansas,
- (4) provide all financial statements requested by the Authority and have ready a system to deliver future statements at set intervals,

all of which shall be provided or done to the Authority's satisfaction within ninety (90) days of the Board's approval of this resolution.

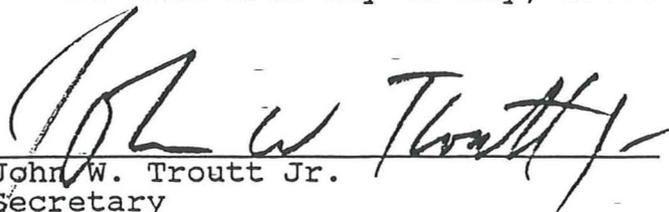
THAT the Investment Committee of the Board is hereby authorized on behalf of the Authority to prepare investment documents covering the transaction authorized hereby, which documents shall meet all requirements contained in the Authority's enabling legislation and shall include such provisions as, in the judgement of the Committee, are necessary or desirable to protect the Authority's investment in Electromap, Inc. The Committee is further authorized on behalf of the Authority to negotiate with Electromap, Inc. such terms and conditions as are appropriate to the investment authorized hereby.

THAT the President of the Authority is hereby authorized on behalf of the Authority to execute and deliver all documents relating to the investment authorized hereby.

BE IT FURTHER RESOLVED:

THAT all of the above policies are subject to the action of the Board of Directors within the framework established by Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated.

APPROVED by the Board of Directors
on this 19th day of May, 1989.



John W. Troutt Jr.
Secretary
Board of Directors

**ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY**

100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

RESOLUTION NO. 89-22

PROVIDING FOR THE SEED CAPITAL INVESTMENT OF MONIES FROM THE INVESTMENT FUND OF THE AUTHORITY IN A TECHNOLOGY-BASED ENTERPRISE IN ARKANSAS.

WHEREAS, Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated authorizes the Authority to participate in the initial capitalization of technology-based enterprises through purchases of their qualified securities;

WHEREAS, pursuant to its enabling legislation, the Authority has created the Seed Capital Investment Program (the "Program") to foster the formation and development of innovative, technology-based business enterprises that will stimulate the economy of Arkansas through increased employment and leveraging of private investment;

WHEREAS, N Cor Technologies, Inc. has submitted an application under the Program requesting an investment in the amount of \$200,000 to provide a portion of its initial capitalization;

WHEREAS, N Cor Technologies, Inc.'s initial capitalization will require a total of \$575,000, of which \$75,000 in cash, equipment, and intellectual property will be provided by its principals, and \$300,000 is reasonably expected to be available from sources other than the Authority;

WHEREAS, N Cor Technologies, Inc. qualifies as an "enterprise" as defined by the Authority's enabling legislation, in that its principal place of business is located in El Dorado, Arkansas, and it proposes to engage in manufacturing and the provision of services involving a significant amount of technology;

WHEREAS, based upon N Cor Technologies, Inc.'s application and the results of an investigation conducted by the Authority's staff, the Board hereby finds that:

- (1) the proceeds of the requested investment will be used only to cover a portion of N Cor Technologies, Inc.'s initial capitalization,
- (2) N Cor Technologies, Inc. has a reasonable chance of success,
- (3) the Authority's participation in N Cor Technologies, Inc.'s initial capitalization is necessary to the company's success because sufficient funding is unavailable in the traditional capital markets or, if available, could be obtained only on terms that would substantially hinder the company's prospects for success,
- (4) N Cor Technologies, Inc.'s Project has the reasonable potential to create a substantial amount of primary employment within Arkansas,
- (5) N Cor Technologies, Inc.'s principals have committed to make substantial financial and time commitments to the company,
- (6) the investment requested by N Cor Technologies, Inc. will constitute a "qualified security" under the Authority's enabling legislation,
- (7) there is a reasonable possibility that the Authority will recoup at least its initial investment in N Cor Technologies, Inc.,
- (8) N Cor Technologies, Inc. will enter into binding commitments with the Authority to supply such financial and other data as are required under the Authority's enabling legislation and to submit to such management control on the part of the Authority as the Board, through its Investment Committee, deems prudent for the protection of the Authority's investment, and,

WHEREAS, N Cor Technologies, Inc.'s application for an investment complies in all respects with the requirements of the Authority's enabling legislation and the rules governing the Program;

NOW THEREFORE, BE IT RESOLVED:

THAT the application Project No. 89-S-0010 of N Cor Technologies, Inc. for an initial capitalization investment in the amount not to exceed \$200,000 is hereby approved; provided, however, that prior to the Authority's disbursement of investment proceeds, N Cor Technologies, Inc. shall:

- (1) provide proof of its incorporation under the laws of the State of Arkansas,
- (2) demonstrate that its principals have contributed \$75,000 in cash, equipment, and intellectual property to N Cor Technologies, Inc.'s initial capitalization,
- (3) obtain financing or binding commitments for financing from sources other than the Authority in an amount not less than \$300,000, which monies shall be applied to N Cor Technologies, Inc.'s initial capitalization,
- (4) sign a declaration of intent, which shall be provided by the Authority, to retain its principal place of business and its principal manufacturing facility in the state of Arkansas,
- (5) N Cor Technologies, Inc. will provide an opinion of counsel acceptable to the Authority and the Investment Committee of the Authority stating that the possibility of the former company, RES, Inc., obtaining a claim against the new company, N Cor Technologies, Inc. is negligible,

all of which shall be provided or done to the Authority's satisfaction within ninety (90) days of the Board's approval of this resolution.

THAT the Investment Committee of the Board is hereby authorized on behalf of the Authority to prepare investment documents covering the transaction authorized hereby, which documents shall meet all requirements contained in the Authority's enabling legislation and shall include such provisions as, in the judgement of the Committee, are necessary or desirable to protect the Authority's investment

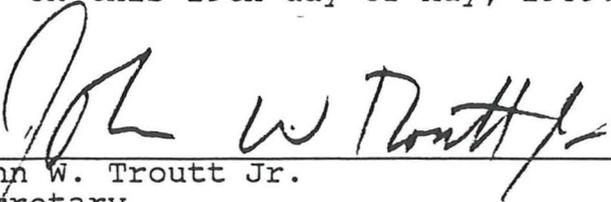
in N Cor Technologies, Inc. The Committee is further authorized on behalf of the Authority to negotiate with N Cor Technologies, Inc. such terms and conditions as are appropriate to the investment authorized hereby.

THAT the President of the Authority is hereby authorized on behalf of the Authority to execute and deliver all documents relating to the investment authorized hereby.

BE IT FURTHER RESOLVED:

THAT all of the above policies are subject to the action of the Board of Directors within the framework established by Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated.

APPROVED by the Board of Directors
on this 19th day of May, 1989.



John W. Troutt Jr.
Secretary
Board of Directors

M I N U T E S

PLANNING COMMITTEE MEETING
HIGHER EDUCATION BUILDING, CONFERENCE ROOM
APRIL 17, 1989

CALL TO ORDER

Mr. John Troutt, Chairman of the Planning Committee, called the meeting to order at 10:10 a.m. Present were Dr. Win Thompson, Dr. Paul Marion, Dr. John Ahlen, Mr. Chuck Myers, Mr. Alan Gumbel, and Ms. Carol Griffiee of Editorial Services, Inc.

OLD BUSINESS

There were no old business items discussed.

NEW BUSINESS

Dr. Ahlen presented a formal request from the University of Arkansas at Little Rock for additional funding in the amount of \$60,000. The request was necessary because the Little Rock Technology Center was going to run out of funds prior to the close of the fiscal year. The Committee deferred action until the availability of funds could be determined from the Governors office.

Dr. Ahlen reported that the Memorandum of Agreement between ASTA and the University of Arkansas, Monticello, was acceptable to UAM. He recommended that the memorandum be finalized and prepared for the appropriate signatures; the Committee concurred.

The University of Arkansas at Pine Bluff Business Incubator Proposal and the design of a policy recommendation to the full Board were addressed at the same time. Dr. Marion and Mr. Troutt discussed the issue of whether the program had drifted from the technology development of the science and technology mission of ASTA, and had become more generally rural and economic development. The Committee supports the broader economic development mission that business incubators serve, but only if the program is funded at a level that can support the broader mission. The Committee questioned whether programs of other agencies could better serve the broader mission.

Mr. Troutt recommended that the staff examine the Business Incubator Program and programmatic areas of other agencies. Dr. Thompson said that, given the limited resources of the program, the focus should not be on creating new projects, but on sustaining the technology development incubators.

Mr. Troutt analogized the problem to the Applied Research Program where he felt the Authority was making the greatest impact; many good projects were not funded because of lack of funds, not a lack of good projects.

The discussion then centered around UAPB's proposal. If the proposal were funded, given the amount of funds allotted to the program for the next biennium, then it would definitely handicap the existing projects. This was the consensus of the Committee.

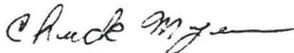
Given these concerns the Committee recommended preparing a resolution for the Board containing the following actions:

- (1) The Authority would not issue any more solicitations for business incubator proposals.
- (2) The UAPB proposal would be evaluated, but action on its funding would be deferred until there are funds available to fund it without detracting from the existing projects.
- (3) The Authority's staff, the Planning Committee, and Board members should study the program and consult with other state agencies to develop a draft policy for the future of the Business Incubator Program.

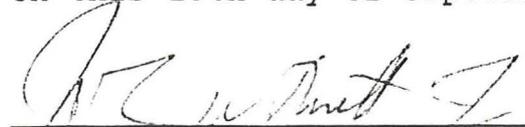
ADJOURNMENT

The meeting was adjourned at 11:15 a.m.

Respectfully submitted,


Chuck Myers
Research Program Manager

Approved by the Board of Directors
on this 15th day of September, 1989.



John W. Troutt Jr.
Secretary
Board of Directors

**ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY**

100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

RESOLUTION NO. 89-15

PROVIDING THE BASIS OF A PLAN FOR THE BUSINESS INCUBATOR PROGRAM IN FISCAL YEARS 1989, 1990, AND 1991 BY THE BOARD OF DIRECTORS OF THE ARKANSAS SCIENCE AND TECHNOLOGY AUTHORITY.

WHEREAS, Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated empower the Arkansas Science and Technology Authority to create, in cooperation with Arkansas colleges and universities, facilities to foster the growth of technology-based enterprises; and

WHEREAS, the Genesis Project at the University of Arkansas, Fayetteville, the Technology Center at the University of Arkansas at Little Rock, the East Arkansas Business Incubator System at Arkansas State University, the North Arkansas Business Incubator System at the North Arkansas Community College, the Business Center at Southern Arkansas University, and the Industrial Renaissance Center at the University of Arkansas at Monticello were funded under the rules and guidelines of the Authority's Business Incubator Program; and

WHEREAS, the Board of Directors of the Arkansas Science and Technology Authority finds that the Business Incubator Program is a fully implemented economic development program that addresses important economic issues in all regions of the state; and

WHEREAS, the Board of Directors is committed to a plan that will further the goals of the Authority by continuing to invest in projects that demonstrate clear technology development potential and the highest probability of success; and

WHEREAS, the Board of Directors of the Arkansas Science and Technology Authority finds that the appropriation for the Business Incubator Program is less than that required to maintain operations in all projects through the 1989-1991 biennium; and

WHEREAS, Act 571 of 1987 includes an appropriation of \$1,000,000 for Incubator Facilities under the auspices of Arkansas colleges and universities to foster the growth of technology-based enterprises; and

WHEREAS, \$250,000 of the aforementioned appropriation is in category A; and

WHEREAS, Act 976 of 1989 includes an appropriation of \$600,000 for Incubator Facilities under the auspices of Arkansas colleges and universities to foster the growth of technology-based enterprises; and

WHEREAS, \$600,000 of the aforementioned appropriation is in category A;

NOW THEREFORE BE IT RESOLVED:

THAT the Arkansas Science and Technology Authority shall not solicit any new proposals under the Business Incubator Program unless sufficient funding is provided for the solicitation; and

THAT proposals submitted in response to the Southeast Arkansas Business Incubator solicitation that closed March 31, 1989 will be evaluated and new projects will be designated where appropriate, but action on funding will be deferred until there are sufficient funds available to operate new projects without encumbering the existing projects funds; and

THAT the Authority staff shall evaluate the Business Incubator Program and consult with other state agencies to develop a policy for the operation of the Business Incubator Program beyond the 1989-1991 biennium.

BE IT FURTHER RESOLVED:

THAT the Authority, through its staff, will continue to monitor the expenditure of funds by the projects for compliance with the Authority's guidelines and directives; and

THAT all of the above policies are subject to the action of the Board of Directors within the framework established by Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated.

APPROVED by the Board of Directors
on this 19th day of May, 1989.



John W. Troutt Jr.
Secretary
Board of Directors

M I N U T E S

PLANNING COMMITTEE MEETING MINUTES
 DEPARTMENT OF HIGHER EDUCATION
 MAY 19, 1989

CALL TO ORDER

Chairman John Troutt called the meeting to order. Committee member, Dr. Paul Marion, was present. Mr. Alan Gumbel and Mr. Chuck Myers of the Authority's staff were also present.

OLD BUSINESS

The purpose of the meeting was to discuss the proposed rules for Centers for Applied Technology Program. The committee recommended the following revisions to the rules:

Section 2.1.2 "Colleges and Universities" shall mean those **state-supported or independent, not for profit, institutions of higher education in Arkansas which offer degrees at the baccalaureate level or higher.**

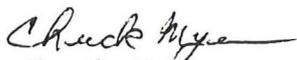
Section 5.1.5 The ability and willingness to cooperate with the Authority, the Arkansas Industrial Development Commission, **the Arkansas Department and Board of Higher Education,** and other economic development agencies in promoting the growth and development in Arkansas of enterprises based upon or benefiting from the areas of technology involved.

* (revisions are in boldface type)

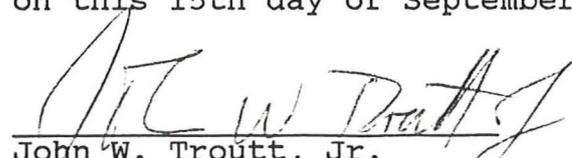
ADJOURNMENT

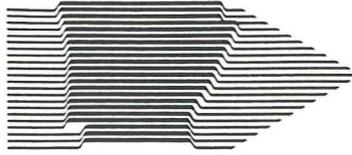
The meeting was adjourned.

Respectfully submitted,


 Chuck Myers
 Research Program Manager

Approved by the Board of Directors
 on this 15th day of September 1989.


 John W. Troutt, Jr.
 Secretary
 Board of Directors



ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY
100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

CENTERS FOR APPLIED TECHNOLOGY PROGRAM RULES

- 1.0 General Information
 - 1.1 Program Name
 - 1.2 Purpose
 - 1.3 Authorization
- 2.0 General Program Information
 - 2.1 Definitions
- 3.0 Eligibility
 - 3.1 Proposing Institution
 - 3.2 Proposed Center
 - 3.3 Conflict of Interest
- 4.0 Application Process
 - 4.1 Application
 - 4.2 Proprietary Information
- 5.0 Evaluation
 - 5.1 Evaluation Criteria
 - 5.2 Awards
- 6.0 Award Letters

1.0 GENERAL INFORMATION

The Arkansas Science and Technology Authority was created by Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987, Annotated and given the mission to bring the benefits of science and advanced technology to the people and state of Arkansas. Programs established by the Arkansas Legislature require the Authority to adopt certain rules for carrying out its mission.

1.1 PROGRAM NAME

These rules govern the Science and Technology Authority's Centers for Applied Technology Program.

1.2 PURPOSE

The purpose of the Centers for Applied Technology Program is to encourage greater collaboration between private enterprises and Arkansas colleges and universities in the development and application of new technologies.

1.3 AUTHORIZATION

The Centers for Applied Technology Program is authorized by Act 803 of 1989. The power to make rules and guidelines for programs is granted to the Authority by Section 15-3-110 of the Arkansas Code of 1987, Annotated.

2.0 GENERAL PROGRAM INFORMATION

The Centers for Applied Technology Program was created to identify, designate and fund Centers in technological areas with significant potential for economic growth and development in Arkansas, or which the application of new technologies could significantly enhance the productivity and stability of Arkansas enterprises.

It is the intent of the Authority's Board of Directors to encourage competitive proposals within identified technological areas. These areas will be described in the Proposal Guidelines for the Centers for Applied Technology Program.

2.1

DEFINITIONS

For the purpose of the Authority's Centers for Applied Technology Program, the following words and phrases have been defined.

2.1.1

"Center for Applied Technology" or "Center" shall mean a college or university or university affiliated unit, or a consortium of such units, which conducts a continuing program of basic and applied research, development, and technology transfer in one or more technological areas, in collaboration with and through the support of private enterprises.

2.1.2

"Colleges and Universities" shall mean those state-supported or independent, not for profit institutions of higher education in Arkansas which offer degrees at the baccalaureate level or higher.

3.0

ELIGIBILITY

Eligible projects will be those that satisfy the following requirements.

3.1

PROPOSING INSTITUTION

Proposals for Centers for Applied Technology must be submitted by an institution of higher learning within Arkansas.

3.2

PROPOSED CENTER

The proposed project must propose the creation of a Center concentrating its research and development effort on specific scientific and technological areas.

3.3 CONFLICT OF INTEREST

No Director, officer or employee of the Authority for purpose of personal gain, shall have or attempt to have, directly or indirectly, any interest in the contract or agreement of the Authority in connection with the Centers for Applied Technology Program.

It shall not be a conflict of interest for the Authority to permit any proposing group with which a Director of the Authority is affiliated to participate in this program providing that such Director shall promptly disclose the nature of the affiliation to the Board of Directors.

4.0 APPLICATION PROCESS

Proposals for the Centers for Applied Technology Program shall be submitted in a format proscribed by the Authority. The following information shall be included:

4.1 APPLICATION

- 4.1.1 A Project Summary and Cover-Sheet which contains the following information:
 - 4.1.1.1 Name of the institution applying for funds to establish a Center for Applied Technology;
 - 4.1.1.2 Name of the principal investigator(s);
 - 4.1.1.3 Name and address of the institutional authorizing officer;
 - 4.1.1.4 Mailing address of the principal investigator(s);
 - 4.1.1.5 Telephone number of the institutional authorizing officer;
 - 4.1.1.6 Telephone number of the principal investigator(s);
 - 4.1.1.7 Title of the project;
 - 4.1.1.8 Amount of funds requested from the Authority;
 - 4.1.1.9 Project abstract;

- 4.1.1.10 Dated signature of the institutional authorizing officer;
- 4.1.1.11 Dated signature of the principal investigator(s);
- 4.1.2 A description of the scientific and technological focus, its research and development plans of the proposed Center, and its relevance to the Arkansas economy.
- 4.1.3 A description of the proposed Center's technology transfer and technology development efforts geared to benefit specific industries within Arkansas.
- 4.1.4 A description of the organizational structure and management plan for the proposed Center.
- 4.1.5 A detailed description of the budget for an initial two year period, and a projected budget for the following three years.
- 4.1.6 A description of institutional, other governmental and private funds to be used by the proposed Center.
- 4.2 PROPRIETARY INFORMATION

Proprietary information contained in a Centers proposal will be maintained subject to the limitations of the Freedom of Information Act provided that the proprietary information is clearly marked.
- 5.0 EVALUATION

Proposals meeting all eligibility criteria will be evaluated on the basis of the following criteria:
- 5.1 EVALUATION CRITERIA
 - 5.1.1 An established record of research, development and instruction in the area of technology.
 - 5.1.2 The capacity to conduct research and development activities in collaboration with private enterprises.

- 5.1.3 The capacity to secure substantial private and other government funding for the proposed center.
- 5.1.4 A willingness to work cooperatively with other colleges and universities in conducting research and development activities, and in disseminating research results and to work with institutions of higher learning to enhance the quality of technological education in the area of technology involved.
- 5.1.5 The ability and willingness to cooperate with the Authority, the Arkansas Industrial Development Commission, the Arkansas Department and Board of Higher Education, and other economic development agencies in promoting the growth and development in Arkansas of enterprises based upon or benefiting from the areas of technology involved.

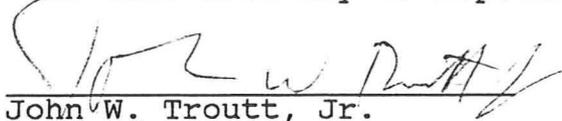
5.2 AWARDS

The final decision to commit funds to an applicant shall be made by the Board of Directors of the Authority. The Board's decision to will be based on information derived from the review process and the Board's own interpretation of that information. The Board's decision shall be final.

5.3 AWARD LETTERS

Cash awards will be distributed by the Authority on the recommendation of the Board of Directors based on the terms and conditions agreed upon by the Board of Directors of the Authority and the sponsoring institutions of higher learning.

APPROVED by the Board of Directors
on this 15th day of September 1989.



John W. Troutt, Jr.
Secretary
Board of Directors

JWT:kb

FILED with the Secretary of State on
this 22nd day of SEPTEMBER, 1989.



Joe F. Nix, Chairman
Board of Directors

MINUTES OF THE SCIENCE ADVISORY COMMITTEE MEETING
APRIL 26, 1989

The meeting was called to order at 1:40 p.m. by Dr. David Straub, Committee Chairman. Committee members attending the meeting were Dr. Malay Mazumder, Dr. Frank Orthoefer, Dr. Phillip Rayford, Dr. Richard Speairs, and Dr. Dayton Steelman. Members of the Authority's Research Committee attending were Dr. Betty Overton, Dr. Don Pederson, and Dr. William Willingham; Dr. Joe Nix, ASTA Board President, Dr. Joe Gentry, Vice President Research, and visitor Carol Griffie were also present.

Dr. Straub explained that the purpose of the meeting was for the Science Advisory Committee to be brought up to date on the status of the Research programs at ASTA and to provide advice to ASTA staff regarding future directions of the Basic Research Grant Program.

Dr. Gentry called the Committee's attention to the handout on research funding that summarized the Authority's funding history. In the first biennium, in both solicitations, 138 basic proposals were submitted and 18 were funded; 15 applied proposals were submitted and 6 were funded. In the second biennium, \$1.8 million was appropriated and 34 projects have been funded. In fiscal year '88, ASTA funded 6 basic and 7 applied proposals; in fiscal year '89, 7 basic and 9 applied were funded. The Authority also received \$300,000 in stripper well money designated by the Governor to fund energy-related research; ASTA currently has funded 4 basic and 1 applied energy-related project and has 5 basic and 2 applied pending. Dr. Nix asked whether it was possible that ASTA could receive more money for energy-related research; Dr. Gentry said that the Governor had approved another \$500,000 for GRANDE research that would flow through ASTA. ASTA also received a \$20,000 grant from the Tennessee Valley Authority to fund biomass research.

For the 1989-91 biennium, the research programs have been allocated \$1 million in Capital Improvement funds, with \$600,000 in Category A. Dr. Gentry indicated that part of this money will probably be deferred. Dr. Gentry gave the Committee a list of proposals and institutions and said that in the 1985-86 biennium, ASTA funded 7% of the proposals submitted. In the last biennium, the Authority has funded closer to 1/3 of the proposals submitted, a rate that Dr. Gentry said was closer to the norm.

Dr. Gentry also reported that he had had indications that ASTA's credibility in higher education has improved. Dr. Straub said that the critical reviews of the proposals had helped credibility and that the review process was one of ASTA's best functions. He indicated that providing investigators with feedback to help them improve their proposals was as important as awarding grants. The Committee discussed ways in which ASTA could encourage resubmissions of revised proposals to ASTA as well as other funding agencies. Committee members agreed that the Authority could provide an important function as a sort of clearinghouse of advice for researchers.

Dr. Nix asked Committee members for their opinions about ASTA's funding constraints. In the past, the Authority has not known exactly the amount of funding that would be available. Dr. Nix expressed concern that since the proposals trickled in without firm deadlines and the funding levels were always uncertain, the best proposals might not always be funded. Dr. Straub agreed that having deadlines throughout the biennium was more fair. Dr. Mazumder added that researchers seem to work better when they have periodic deadlines. Dr. Nix also suggested that ASTA include the anticipated funding levels in the Request for Proposals to give the scientists as much information as possible.

The Committee recommended that ASTA staff set two deadlines per year for the Basic Research Grant Program to be coordinated with the academic calendar. The Committee also recommended that ASTA keep the solicitation for proposals for the Applied Research Grant Program open for the entire biennium and suggested that a reminder regarding the Applied Research Grant Program deadline be included in the solicitations for basic proposals.

Dr. Nix also asked about the average awards for basic proposals as compared to applied proposals. Dr. Gentry said that applied proposals average \$20,000, while the basic proposals average \$30,000. He indicated that more applied proposals were being submitted, which supports the economic development function of the Authority. Dr. Nix reminded the Committee that until the Authority is established and can show successes, it can't afford to fund only the best basic research; ASTA must show an impact on Arkansas' economy.

Dr. Straub asked Committee members for their opinions regarding honoraria for proposal review. He said that he pays reviewers for the Veterans' Administration \$100 for each review. The Committee recommended that ASTA pay honoraria when advisable, in an amount to be determined by the Research Committee and the Board of Directors.

Dr. Straub adjourned the meeting at 3:25.

M I N U T E S

**RESEARCH COMMITTEE MEETING
SCIENCE AND TECHNOLOGY AUTHORITY CONFERENCE ROOM
MAY 17, 1989**

CALL TO ORDER

Committee members Dr. Betty Overton and Dr. William Willingham, and ASTA staff members Dr. Joe Gentry and Ms. Andrea Harter attended.

OLD BUSINESS

Dr. Gentry reviewed the status of the Center for Energy-Related Research, explaining that \$177,000 was still available for energy-related projects.

NEW BUSINESS

The Committee discussed the draft Guidelines for the Basic and Applied Research Grant Programs. Dr. Gentry pointed out that the main change in the Applied Guidelines was a statement explicitly requiring a firm commitment for matching money from the cosponsor before the Authority would release its funds. Dr. Overton asked that instructions for the Budget Page be included in the Guidelines. With these changes, Dr. Overton moved that the Committee approve the Applied Research Grant Program Guidelines. Dr. Willingham seconded the motion, and the motion passed.

Dr. Pederson had asked Dr. Gentry to consider changing the October deadline in the Basic Research Grant Program Guidelines to a September date. Dr. Overton pointed out that an October 15 deadline is more realistic for the researchers coordinating their proposal submissions with the school year. She proposed that a statement be included in the request for proposals to the effect that the Authority anticipated another solicitation with a January 31 closing date, pending availability of funds. Dr. Pederson had suggested adding an item specifically requesting a statement addressing the potential of the proposed project for economic development. With these changes, Dr. Overton moved that the Committee adopt the proposed Guidelines for the Basic Research Grant Program. Dr. Willingham seconded, and the motion passed.

Dr. Gentry informed the Committee of a project, 88-A-0005, Computerized Vision System for Micromachining Control. The cosponsor for this project, Ozark Machine & Tool, never contributed its share of the project cost to the University of Arkansas, so the Authority had never released its check to the University. Following communication with the cosponsor, the Authority rescinded its award as the Applied Research Grant Program Guidelines require. Dr. Gentry suggested that the Committee use the funds now available to fund the final 10% of another project, and the Committee agreed.

Dr. Overton formally acknowledged that some of the proposals considered by the Committee were from her institution.

The Committee approved recommending the following energy-related proposals for funding:

9-EB-042, "Energy Conservation and Indoor Air Quality Control," by Dr. Malay Mazumder of the Graduate Institute of Technology at the University of Arkansas at Little Rock; \$38,487.

9-EB-050, "Heat and Moisture Transfer in Multi-Layer Walls," by Dr. Rick Couvillion of the Mechanical Engineering Department at the University of Arkansas, Fayetteville; \$43,780.

9-EB-051, "Detection of Atomic Hydrogen by Magnetic Resonance in Optically Pumped Flames," by Dr. Rajendra Gupta of the Department of Physics at the University of Arkansas, Fayetteville; \$15,392.

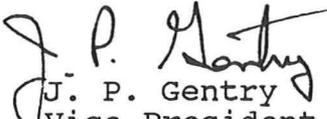
9-EA-027, "Investigation of Energy-Efficient Refrigerator Design," by Dr. Burton Henderson of the Department of Engineering Technology at the University of Arkansas at Little Rock and cosponsored in the amount of \$6,026 by American Dixie, Inc.; \$11,652.

Dr. Gentry explained that since the proposals that the Committee recommended for funding did not obligate all of this money, the Authority had two choices: either to solicit another round of energy-related research projects, or to fund energy-related proposals received from the Basic and Applied Research Grant Program solicitations. The Committee agreed to use the money to fund proposals from the Basic and Applied solicitations. Dr. Overton suggested that information regarding the availability of funding for energy-related proposals, as well as the possibility of future funding for energy-related research, be included in the request for proposals.

ADJOURNMENT

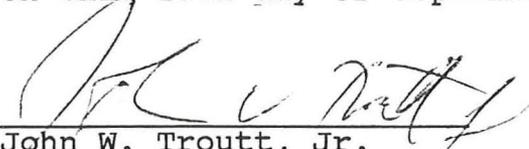
The meeting was adjourned.

Respectfully submitted,


J. P. Gentry
Vice President Research

JPG/mas

Approved by the Board of Directors
on this 15th day of September, 1989.


John W. Troutt, Jr.
Secretary
Board of Directors

JWT:kb

**ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY**

100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

RESOLUTION NO. 89-17

PROVIDING THE APPROVAL FOR THE FUNDING OF TWO BASIC RESEARCH GRANT PROPOSALS BY THE BOARD OF DIRECTORS OF THE ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY.

WHEREAS, Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated empower the Arkansas Science & Technology Authority to establish and administer a Basic Research Grant Program; and

WHEREAS, Board Resolution No. 88-14 established the Center for Energy-Related Research of the Arkansas Science & Technology Authority; and

WHEREAS, a grant of \$300,000 has been received by the Arkansas Science & Technology Authority to fund energy-related research; and

WHEREAS, there are sufficient unencumbered funds in the aforementioned grant; and

WHEREAS, proposals were solicited in accordance with rules and guidelines for the Program; and

WHEREAS, proposals were reviewed for eligibility and completeness by the Authority's staff and evaluated on the basis of scientific merit by peers in appropriate fields of science; and

WHEREAS, the Research Committee is committed to recommending to the Board of Directors those proposals that have clear economic development potential and are ranked as being scientifically meritorious; and

WHEREAS, the Research Committee finds that it is appropriate for the Authority to fund only proposals that are of limited time duration;

NOW THEREFORE BE IT RESOLVED:

THAT the Arkansas Science & Technology Authority's Board of Directors approves for funding the following proposals:

PROPOSAL NO 9-EB-050, "Heat and Moisture Transfer in Multi-layer Walls," by Dr. Rick J. Couvillion of the University of Arkansas at Fayetteville in the amount of \$43,780; and

PROPOSAL NO. 9-EB-051, "Detection of Atomic Hydrogen by Magnetic Resonance in Optically Pumped Flames," by Dr. Rajendra Gupta of the University of Arkansas at Fayetteville in the amount of \$15,392.

BE IT FURTHER RESOLVED:

THAT all of the above policies are subject to the action of the Board of Directors within the framework established by Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated.

APPROVED by the Board of Directors
on this 19th day of May, 1989.



John W. Troutt Jr.
Secretary
Board of Directors

**ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY**

100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

RESOLUTION NO. 89-18

PROVIDING THE APPROVAL FOR THE FUNDING OF ONE BASIC RESEARCH GRANT PROPOSAL BY THE BOARD OF DIRECTORS OF THE ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY.

WHEREAS, Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated empower the Arkansas Science & Technology Authority to establish and administer a Basic Research Grant Program; and

WHEREAS, Board Resolution No. 88-14 established the Center for Energy-Related Research of the Arkansas Science & Technology Authority; and

WHEREAS, a grant of \$300,000 has been received by the Arkansas Science & Technology Authority to fund energy-related research; and

WHEREAS, there are sufficient unencumbered funds in the aforementioned grant; and

WHEREAS, proposals were solicited in accordance with rules and guidelines for the Program; and

WHEREAS, proposals were reviewed for eligibility and completeness by the Authority's staff and evaluated on the basis of scientific merit by peers in appropriate fields of science; and

WHEREAS, the Research Committee is committed to recommending to the Board of Directors those proposals that have clear economic development potential and are ranked as being scientifically meritorious; and

WHEREAS, the Research Committee finds that it is appropriate for the Authority to fund only proposals that are of limited time duration;

NOW THEREFORE BE IT RESOLVED:

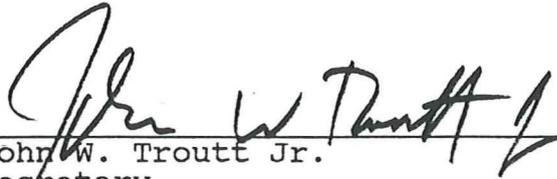
THAT the Arkansas Science & Technology Authority's Board of Directors approves for funding the following proposal:

PROPOSAL 9-EB-042, "Energy Conservation and Indoor Air Quality Control," by Dr. Malay K. Mazumder of the University of Arkansas at Little Rock in the amount of \$38,487.

BE IT FURTHER RESOLVED:

THAT all of the above policies are subject to the action of the Board of Directors within the framework established by Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated.

APPROVED by the Board of Directors
on this 19th day of May, 1989.



John W. Troutt Jr.
Secretary
Board of Directors

**ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY**

100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

RESOLUTION NO. 89-19

PROVIDING THE APPROVAL FOR THE FUNDING OF ONE APPLIED RESEARCH GRANT PROPOSAL BY THE BOARD OF DIRECTORS OF THE ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY.

WHEREAS, Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated empower the Arkansas Science & Technology Authority to establish and administer an Applied Research Grant Program; and

WHEREAS, Board Resolution No. 88-14 established the Center for Energy-Related Research of the Arkansas Science & Technology Authority; and

WHEREAS, a grant of \$300,000 has been received by the Arkansas Science & Technology Authority to fund energy-related research; and

WHEREAS, there are sufficient unencumbered funds in the aforementioned grant; and

WHEREAS, proposals were solicited in accordance with rules and guidelines for the Program; and

WHEREAS, proposals were reviewed for eligibility and completeness by the Authority's staff and evaluated on the basis of scientific merit by peers in appropriate fields of science; and

WHEREAS, the Research Committee is committed to recommending to the Board of Directors those proposals that have clear economic development potential and are ranked as being scientifically meritorious; and

WHEREAS, the Research Committee finds that it is appropriate for the Authority to fund only proposals that are of limited time duration;

RESOLUTION 89-19

Page 2

NOW THEREFORE BE IT RESOLVED:

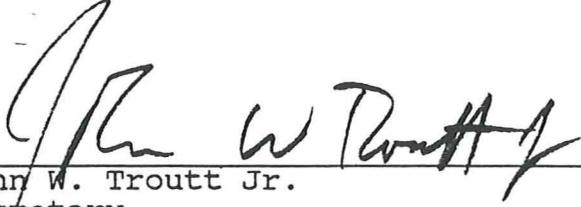
THAT the Arkansas Science & Technology Authority's Board of Directors approves for funding the following proposal:

PROPOSAL NO. 9-EA-027, "Investigation of Energy-Efficient Refrigerator Design," by Dr. Burton Henderson of the University of Arkansas at Little Rock in the amount not to exceed \$11,652. This project is cosponsored by American Dixie, Inc. in the amount of \$6,026.

BE IT FURTHER RESOLVED:

THAT all of the above policies are subject to the action of the Board of Directors within the framework established by Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated.

APPROVED by the Board of Directors
on this 19th day of May, 1989.



John W. Troutt Jr.
Secretary
Board of Directors

**ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY**

100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

**APPLIED RESEARCH GRANT PROGRAM
GUIDELINES**INTRODUCTION

The Arkansas Science & Technology Authority is empowered by Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated to encourage, establish, and support both basic and applied research in science and technology within the State's colleges and universities.

The following guidelines address only the Authority's Applied Research Grant Program. The Authority is governed by a Board of Directors which awards grants to qualified applicants to carry out research projects. Through these grants, the Board seeks to encourage and support scientific research in areas which contribute to the economic development of the state. For the 1989-1991 biennium, \$1,500,000 has been appropriated for the Authority's research grant programs.

APPLIED RESEARCH GRANTS

Applied Research Grants can be used to fund any activity which seeks to utilize, synthesize, or apply existing scientific or technological knowledge, information, or resources to the resolution of a specific problem, question, or issue. It is the Authority's intention to concentrate its support on projects that enhance technological innovation, and hence economic development, within the state. Thus, proposals must meet the following conditions:

- the project must demonstrate the feasibility of concepts having distinct potential for industrial or commercial application to new products, processes, or services;
- the project must be carried out in cooperation with an Arkansas industry or private source which is providing fifty percent or more of the total cost or thirty-three and one-third percent or more if the private industry is principally located in Arkansas and has fifty or fewer employees; and
- the project must demonstrate the potential to enhance employment opportunities within Arkansas.

Industry support includes matching funds and new machinery and equipment as defined in Section 26-51-1101 of the Arkansas Code of 1987 Annotated (an Act that provides a research and development tax credit for qualifying research approved by the Authority and the Department of Higher Education).

APPLICANT ELIGIBILITY

Arkansas colleges and universities and faculty members at such institutions may submit applications to the Authority. Such applications must be submitted in accordance with procedures established at the respective institutions for submission of requests for external support.

TYPES OF PROJECTS

In fiscal year 1989 the Authority funded nine applied research projects with an average grant of \$19,700. The Authority funds projects which have a high probability of contributing to the growth, development, and enhancement of Arkansas' economy. Consistent with this objective, the programs of the Authority shall support applied research which seeks to refine existing scientific knowledge and concepts and to develop usable technologies. However, the Applied Research Grant Program of the Arkansas Science & Technology Authority will not support market research for particular products or inventions.

SUBMISSION OF APPLIED RESEARCH PROPOSALS

Proposals will be accepted by the Arkansas Science & Technology Authority at any time until January 31, 1991.

Proposals should not exceed a total of twenty-five pages, including appendices. Please submit seven copies of your proposal. Applications should be typed double-spaced on plain paper and should contain each of the following items:

1. CIP code most clearly describing field of research proposal (Appendix I);
2. The attached Cover Sheet, which includes a brief abstract defining the nature and scope of the project (Appendix II);
3. A statement of the specific objectives to be attained by the proposed project, a description of how these objectives relate to the state's economic development interests, and how the project will enhance employment opportunities within Arkansas;
4. A review of the literature pertinent to the proposed research, including an assessment of previous research efforts;

5. A clearly described implementation plan for the accomplishment of the project. This should include a description of the proposed activities, including experimental design and methods, timetable, and information detailing the availability of the supporting facilities, equipment, and personnel necessary to the attainment of the project's objectives;
6. A detailed budget for the coming year including personnel, fringe benefits, equipment, supplies, travel, and indirect costs at 50% of the NIH or NSF approved schedule (Appendix III);
7. A letter from the cooperating industry or private source committing the required matching funds pending the awarding of the ASTA grant;
8. A statement of plans for future support of the research from sources other than the Authority. This section should include identification of the specific funding sources to be approached and likely titles of the proposals to be submitted;
9. A description of the qualifications of the personnel to be involved in the proposed project. Relevant information includes the academic credentials of key professionals, a listing of recent publications in accepted academic journals, and the record of current and past grant support received in the area; and
10. A statement that a final summary report will be submitted to the Authority within sixty days after the expiration of the award (Appendix IV).

PROJECT REVIEW CRITERIA

Each eligible proposal will be reviewed and evaluated by peer reviewers appointed by the Research Committee of the Authority's Board of Directors. In evaluating the applications, each reviewer will use the following criteria:

1. The scientific merit of the proposal, including the quality and importance of the proposed research and the suggested research procedures;
2. The competence of the professional personnel involved in the project as shown by relevant academic training, research, and publications;
3. The availability of administrative support and resources necessary to ensure a reasonable probability of project success;

4. The soundness of the implementation plan and the likelihood that the project objectives will be achieved;
5. The potential of the project to enhance the transfer of science and technology between academia and business or industry;
6. The commercial feasibility of the proposed research within two years, five years, and ten years;
7. The capacity of the proposed project to enhance employment opportunities in Arkansas;
8. The capacity of the project to attract private investment;
9. The capacity of the project to attract support from sources other than the Authority; and
10. The overall probability of success of the proposed project.

The Research Committee will use the peer reviewers' evaluations in recommending projects for funding to the Authority's Board of Directors. The Authority will make every effort to complete the review and evaluation process within 90 days of the receipt of a proposal.

AWARDS

The final decision to commit funds to an applicant will be made by the Board of Directors of the Authority. The decision to fund will be based on information derived from the review process and its accompanying criteria and the Board's own interpretation of the information. The decision of the Board is final. Awards will be announced at the meeting of the Board of Directors following proposal review and evaluation. Grants shall be payable in the following manner:

Effective Date - 90% of the total ASTA grant amount after receipt of letter certifying industry support has been made;

At 14 Months - 10% after submission of the final report.

* * *

Proposals should be sent to Dr. J. P. Gentry, Vice President Research, Arkansas Science & Technology Authority, 100 Main Street, Suite 450, Little Rock, Arkansas 72201. Receipt of proposals will be acknowledged promptly, and each institution will be advised of any action taken by the Authority.

CHECKLIST FOR PROPOSAL SUBMISSION

To assure that research proposals submitted to the Authority are complete, an administrative check of the following items should be made before mailing.

- ___ Project CIP Code Category (Appendix I).
- ___ Completed Cover Sheet and a project summary of fewer than 200 words (Appendix II).
- ___ All required signatures (principal investigator, co-principal investigator, and authorizing official) on cover sheet (Appendix II).
- ___ Human Subjects Certification, if required.
- ___ Recombinant DNA Certification, if required.
- ___ Detailed description of the proposed research.
- ___ Bibliography of pertinent literature.
- ___ List or description of available facilities and major items of equipment to be used in the proposed research.
- ___ Budget in requested format (Appendix III), including brief description and justification of major items of requested equipment.
- ___ Source and amount of required matching funds.
- ___ Vita of all senior personnel.
- ___ Seven copies of the proposal, including the original signed copy.
- ___ Final Summary Report Statement.
- ___ Page limitation not exceeded.

APPENDIX I - PROJECT CIP CODE CATEGORY

AGRICULTURE

- 01. Agribusiness & Agricultural Production
 - 01.01 Agricultural Business & Management
 - 01.02 Agricultural Mechanics
 - 01.03 Agricultural Production
 - 01.04 Agricultural Products & Processing
 - 01.05 Agricultural Services & Supplies
 - 01.06 Horticulture
 - 01.07 International Agriculture
 - 01.09 Agribusiness & Agricultural Production, Other
- 02. Agricultural Sciences
 - 02.01 Agricultural Sciences, General
 - 02.02 Animal Sciences
 - 02.03 Food Science
 - 02.04 Plant Sciences
 - 02.05 Soil Sciences
 - 02.09 Agricultural Sciences, Other
- 03. Renewable Natural Resources
 - 03.01 Renewable Natural Resources, General
 - 03.02 Conservation & Regulations
 - 03.03 Fishing & Fisheries
 - 03.04 Forestry Production & Processing
 - 03.05 Forestry & Related Sciences
 - 03.06 Wildlife Management
 - 03.09 Renewable Natural Resources, Other

COMMUNICATIONS

- 10. Communication Technologies
 - 10.01 Communication Technologies

COMPUTER & INFORMATION SCIENCES

- 11. Computer & Information Sciences
 - 11.01 Computer & Information Sciences, General
 - 11.02 Computer Programming
 - 11.03 Data Processing
 - 11.04 Information Sciences & Systems
 - 11.05 Systems Analysis
 - 11.09 Computer & Information Sciences, Other

ENGINEERING

- 14. Engineering
 - 14.01 Engineering, General
 - 14.02 Aerospace, Aeronautical, & Astronautical
 - 14.03 Agricultural Engineering
 - 14.04 Architectural Engineering
 - 14.05 Biomedical Engineering & Biomedical Engineering
 - 14.06 Ceramic Engineering
 - 14.07 Chemical Engineering
 - 14.08 Civil Engineering
 - 14.09 Computer Engineering
 - 14.10 Electrical, Electronics & Communications
 - 14.11 Engineering Mechanics
 - 14.12 Engineering Physics
 - 14.13 Engineering Science
 - 14.14 Environmental Health Engineering
 - 14.15 Geological Engineering
 - 14.16 Geophysical Engineering
 - 14.17 Industrial Engineering
 - 14.18 Materials Engineering
 - 14.19 Mechanical Engineering
 - 14.20 Metallurgical Engineering
 - 14.21 Mining & Mineral Engineering
 - 14.22 Naval Architecture & Marine Engineering
 - 14.23 Nuclear Engineering
 - 14.24 Ocean Engineering
 - 14.25 Petroleum Engineering
 - 14.26 Surveying & Mapping Sciences
 - 14.27 Systems Engineering
 - 14.28 Textile Engineering
 - 14.29 Engineering, Other
- 15. Engineering & Engineer-Related Technologies
 - 15.01 Architectural Technologies
 - 15.02 Civil Technologies
 - 15.03 Electrical & Electronic Technologies
 - 15.04 Electromechanical Instrumentation & Maintenance Technologies
 - 15.05 Environmental Control Technologies
 - 15.06 Industrial Production Technologies
 - 15.07 Quality Control & Safety Technologies
 - 15.08 Mechanical & Related Technologies
 - 15.09 Mining & Petroleum Technologies
 - 15.09 Engineering & Engineer-Related Technologies, Other

HEALTH

- 17. Allied Health
 - 17.01 Dental Services
 - 17.02 Diagnostic & Treatment Services
 - 17.03 Medical Laboratory Technologies
 - 17.04 Mental Health/Human Services
 - 17.05 Miscellaneous Allied Health Services
 - 17.06 Nursing-Related Services
 - 17.07 Ophthalmic Services
 - 17.08 Rehabilitation Services
 - 17.09 Allied Health, Other
- 18. Health Science
 - 18.01 Audiology & Speech Pathology
 - 18.02 Basic Clinical Health Sciences
 - 18.03 Chiropractic
 - 18.04 Dentistry
 - 18.05 Emergency/Disaster Science
 - 18.06 Epidemiology
 - 18.07 Health Sciences Administration
 - 18.08 Hematology
 - 18.09 Medical Laboratory
 - 18.10 Medicine
 - 18.11 Nursing
 - 18.12 Optometry
 - 18.13 Osteopathic Medicine
 - 18.14 Pharmacy
 - 18.15 Podiatry
 - 18.16 Population & Family Planning
 - 18.21 Prosectorial Science
 - 18.22 Public Health Laboratory Science
 - 18.23 Toxicology (Clinical)
 - 18.24 Veterinary Medicine
 - 18.99 Health Sciences, Other

HOME ECONOMICS

- 19. Home Economics
 - 19.05 Food Sciences & Human Nutrition

LIFE SCIENCES

- 26. Life Sciences
 - 26.01 Biology, General
 - 26.02 Biochemistry & Biophysics
 - 26.03 Botany
 - 26.04 Cell & Molecular Biology
 - 26.05 Microbiology
 - 26.06 Miscellaneous Specialized Areas, Life Sciences
 - 26.07 Zoology
 - 26.99 Life Sciences, Other

MATHEMATICS

- 27. Mathematics
 - 27.01 Mathematics, General
 - 27.02 Actuarial Sciences
 - 27.03 Applied Mathematics
 - 27.04 Pure Mathematics
 - 27.05 Statistics
 - 27.99 Mathematics, Other

MULTI/INTERDISCIPLINARY STUDIES

- 30. Multi/Interdisciplinary Studies
 - 30.01 Biological & Physical Sciences
 - 30.03 Engineering & Other Disciplines
 - 30.06 Systems Science
 - 30.99 Multi/Interdisciplinary Studies, Other

PARKS & RECREATION

- 31. Parks & Recreation
 - 31.01 Parks & Recreation, General
 - 31.02 Outdoor Recreation
 - 31.03 Parks & Recreation Management
 - 31.04 Water Resources
 - 31.99 Parks & Recreation, Other

PHYSICAL SCIENCES

- 40. Physical Sciences
 - 40.01 Physical Sciences, General
 - 40.02 Astronomy
 - 40.03 Astrophysics
 - 40.04 Atmospheric Sciences & Meteorology
 - 40.05 Chemistry
 - 40.06 Geological Sciences
 - 40.07 Miscellaneous Physical Sciences
 - 40.08 Physics
 - 40.09 Planetary Science
 - 40.99 Physical Sciences, Other
- 41. Science Technologies
 - 41.01 Biological Technologies
 - 41.02 Nuclear Technologies
 - 41.03 Physical Science Technologies
 - 41.99 Science Technologies, Other

PSYCHOLOGY

- 42. Psychology
 - 42.01 Psychology, General
 - 42.02 Clinical Psychology
 - 42.03 Cognitive Psychology
 - 42.04 Community Psychology
 - 42.05 Comparative Psychology
 - 42.06 Counseling Psychology
 - 42.07 Developmental Psychology
 - 42.08 Experimental Psychology
 - 42.09 Industrial & Organizational Psychology
 - 42.10 Personality Psychology
 - 42.11 Physiological Psychology
 - 42.12 Psycholinguistics
 - 42.13 Psychometrics
 - 42.14 Psychoneuropharmacology
 - 42.15 Quantitative Psychology
 - 42.16 Social Psychology
 - 42.99 Psychology, Other

APPENDIX II

CIP Code _____

ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY
COVER SHEET

1. Name of Institution: _____
2. Principal Investigator: _____
3. Mailing Address and Telephone Numbers for:
Institution Contract Office Principal Investigator

(____) _____ (____) _____
4. Title of Project: _____
5. Type of Grant (circle one): Basic Research Applied Research
6. Requested Amount: \$ _____
7. Project Summary:

Authorizing Official
Institution: _____
Date: _____

Principal Investigator
Department: _____
Date: _____

Signature of the application denotes that these individuals have read and understand the guidelines governing the award of these grants and agree to the conditions.

APPENDIX III

ORGANIZATION			
PROJECT DIRECTOR			
SALARIES, WAGES, AND FRINGE BENEFITS	ASTA	MATCH	TOTAL
TRAVEL			
MATERIALS AND SUPPLIES			
EQUIPMENT			
CONTRACTUAL SERVICES, OTHER			
TOTAL DIRECT COSTS			
INDIRECT COSTS			
TOTAL COSTS			

APPENDIX III

INSTRUCTIONS FOR USE OF SUMMARY PROPOSAL BUDGET

I. GENERAL

Completion of this summary does not eliminate the need to document and justify fully the amounts requested in each category. Such documentation should be provided on additional page(s) immediately following the budget in the proposal and should be identified by line item. The documentation page(s) should be titled "Budget Explanation Page."

Revised budgets must be signed and dated by the authorized organizational representative and principal investigator and submitted in at least the original and two copies.

II. BUDGET LINE ITEMS

Matching Funds. In the space under "Match," specify the source of the matching funds.

Salaries, Wages, and Fringe Benefits. On the Budget Explanation Page, list individually all senior personnel and rates of pay.

Travel. Address the type and extent of travel and its relation to the project. Itemize by destination and cost and justify travel outside the United States and its possessions and Canada. Include dates of foreign visits or meetings. Fare allowances are limited to round-trip, economy rates.

Materials and Supplies. Indicate types required and estimate costs.

Equipment. While items exceeding \$500 and two years' useful life are defined as permanent equipment, it is only necessary to list item and dollar amount for each item exceeding \$1,000. Fully justify.

Contractual Services. Indicate name, daily compensation (limited to \$245/day), and estimated days of service, and justify.

Other. Itemize and justify. Include computer equipment leasing, publication costs, etc.

Indirect Costs. Limited to fifty percent of the approved Health and Human Services schedule on Applied Research Grants. ASTA will not fund indirect costs on Basic Research Grants.

DEFINITIONS & EXPLANATORY REMARKS

The "personnel categories" are defined as follows:

Senior Personnel

"Principal Investigator(s)" are individuals(s) so designated by the grantee institution.

A "Faculty Associate" (faculty member) is an individual--other than the Principal Investigator--who is considered by the performing institution to be a member of its faculty or who holds an appointment as a faculty member at another institution, and who will participate in the project being supported.

Other Personnel

A "Postdoctoral Associate" is an individual who received a Ph.D., M.C., D.Sc., or equivalent degree less than five years ago, who is not a member of the faculty of the performing institution, and who is not reported under Senior Personnel above.

"Other Professional" is a person who may or may not hold a doctoral degree or its equivalent, who is considered professional and is not reported as a Principal Investigator, faculty associate, post-doctoral associate, or student. Examples of persons included in this category are doctoral associates not reported above, professional technicians, mathematicians, physicians, veterinarians, system experts, computer programmers, and design engineers.

A "Graduate Student" (Research Assistant) is a part-time or full-time student working on the project in a research capacity who holds at least a bachelor's degree or its equivalent and is enrolled in a degree program heading to an advanced degree.

An "Undergraduate Student" is a student who is enrolled in a degree program (part-time or full-time) leading to a bachelor's degree.

"Support Personnel" include persons working on the project in a nonresearch capacity, such as secretaries, clerk-typists, drafters, animal caretakers, electricians, and custodial personnel, regardless of whether they hold a degree or are involved in degree work.

APPENDIX IV

INSTRUCTIONS FOR FINAL PROJECT REPORT

This report is due within sixty days after the expiration of the award. It should be submitted in two copies to:

Dr. J. P. Gentry
Vice President Research
Arkansas Science & Technology Authority
100 Main Street, Suite 450
Little Rock, Arkansas 72201

Instructions for Part I:

These identifying data items should be the same as on the award documents.

Instructions for Part II:

The final summary (about 200 words) must be self-contained and intelligible to a scientifically literate reader. Without restating the project title, it should begin with a topic sentence stating the project's major thesis. The summary should include, if pertinent to the project being described, the following items:

- * The primary objectives and scope of the project.
- * The techniques or approaches used only to the degree necessary for comprehension.
- * The findings and implications stated as concisely and informatively as possible.
- * The potential contributions of the project results to the economic development of Arkansas.

The Authority may disseminate the project summary. Authors should also be aware that the summary may be used to answer inquiries by nonscientists as to the nature and significance of the research. Scientific jargon and abbreviations should be avoided.

FINAL PROJECT REPORT

PART I—PROJECT IDENTIFICATION INFORMATION

Institution and Address

Award Period

From

To

Cumulative Award Amount

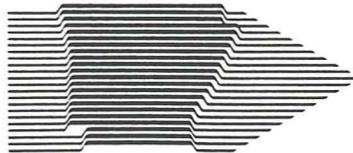
Project Title

PART II—SUMMARY OF COMPLETED PROJECT (FOR PUBLIC USE)

Principal Investigator/Project Director Name (*Typed*)

Principal Investigator/Project Director Signature

Date

**ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY**

100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

**BASIC RESEARCH GRANT PROGRAM
GUIDELINES**INTRODUCTION

The Arkansas Science & Technology Authority is empowered by Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated to encourage, establish, and support both basic and applied research in science and technology within the state's colleges and universities.

The following guidelines address only proposals for the Authority's Basic Research Grant Program. The Authority is governed by a Board of Directors which awards grants to qualified applicants to carry out research projects. For the 1989-1991 biennium, \$1,500,000 has been appropriated for the Authority's research grant programs.

BASIC RESEARCH GRANTS

Basic Research Grants will fund original investigations for the innovative advancement of scientific or technological knowledge. The Authority's intention is to promote and support excellence in science at three levels:

- By providing scientists who are on the verge of becoming nationally competitive with funding to enhance their opportunity for national recognition;
- By providing young scientists with funding to initiate research programs; and
- By providing established scientists with funding to establish innovative new projects or technologies.

Proposed projects should be well-defined, limited to one year, and consistent with the purposes of the Authority. Forty percent of the total cost of the proposed research shall be funded by monies or in-kind services provided by the college or university proposing the research project.

APPLICANT ELIGIBILITY

Arkansas colleges and universities and faculty members at such institutions may submit applications to the Authority. Such applications must be submitted in accordance with procedures established at the respective institutions for submissions of requests for external support.

TYPES OF PROJECTS

In fiscal year 1989, the Authority funded seven Basic Research projects with an average grant of \$32,935. The Authority funds projects which have a high probability of contributing to the enhancement and growth of science and technology in Arkansas. The Authority will support basic research which is concerned with the innovative generation of new knowledge. The Basic Research Grant Program of the Arkansas Science & Technology Authority will not support market research for particular products or inventions.

SUBMISSION OF PROPOSALS

Proposals should be submitted to the Arkansas Science & Technology Authority by October 15, 1989.

Proposals should not exceed a total of twenty-five pages, including appendices. Please submit seven copies of your proposal. Applications should be typed double-spaced on plain paper and should contain the following items:

1. CIP Code most clearly describing the field of research (Appendix I).
2. The attached cover sheet, which includes a brief abstract defining the nature and scope of the project (Appendix II);
3. A statement of the specific objectives to be attained by the proposed project;
4. A review of the literature pertinent to the proposed research, including an assessment of previous research efforts;
5. A clearly described implementation plan for the accomplishment of the project. This should include a description of the proposed activities, including experimental design and methods, timetable, and information detailing the availability of supporting facilities, equipment, and personnel necessary to the attainment of the project's objectives;
6. A detailed budget for the project period including personnel, fringe benefits, equipment, supplies and travel

(Appendix III). Note: ASTA will not fund indirect costs, but institutions may budget indirect costs at 50% of the approved NIH or NSF schedule;

7. A statement detailing the source and amount of the required matching funds;
8. A statement of plans for future support of the research from sources other than the Authority. This section should include identification of the specific funding sources to be approached and likely titles of the proposals to be submitted;
9. A description of the qualifications of the personnel to be involved in the proposed project. Relevant information would include the academic credentials of key professionals, a listing of recent publications in accepted professional journals and the record of current and past grant support received in the area;
10. A statement addressing the extent to which the proposed research will establish or build upon an established institutional base of research capability;
11. A statement addressing the potential of the proposed project to enhance the economy of Arkansas; and
12. A statement that a final summary report will be submitted to the Authority within sixty days after expiration of the award. A Final Summary Report form is attached (Appendix IV).

PROJECT REVIEW CRITERIA

Each eligible proposal will be reviewed and evaluated by peer reviewers appointed by the Research Committee of the Authority's Board of Directors. In evaluating the proposals, each reviewer will use the following criteria:

1. The scientific merit of the proposal, including the quality and importance of the proposed research and the suggested research procedures;
2. The competence of the professional personnel involved in the project as shown by relevant academic training, research, and publications;
3. The availability of administrative support and resources necessary to ensure a reasonable probability of project success;
4. The soundness of the implementation plan and the likelihood that the project objectives will be achieved;

5. The probability that the requested support would result in the permanent and significant enhancement of the institution's research capabilities;
6. The potential of the proposed project to attract support from sources other than the Authority; and
7. The overall probability of success of the proposed project.

The Research Committee is committed to recommending to the Board of Directors for funding only those proposals that have clear economic development potential and are ranked as being scientifically meritorious. The Authority will make every effort to complete the review and evaluation by January 31, 1990.

AWARDS

The final decision to commit funds to an applicant will be made by the Board of Directors of the Authority. The decision to fund will be based on information derived from the review process and its accompanying criteria and the Board's own interpretation of the information. The decision of the Board is final. Awards will be announced at the meeting of the Board of Directors following proposal review and evaluation. Grants shall be payable in the following manner:

Effective date - 90% of total ASTA grant amount;

At 14 months - 10% (after submission of final report).

* * *

Proposals should be sent to Dr. J. P. Gentry, Vice President Research, Arkansas Science & Technology Authority, 100 Main Street, Suite 450, Little Rock, Arkansas 72201. Receipt of proposals will be acknowledged promptly and each institution will be advised of any action taken by the Authority.

CHECKLIST FOR PROPOSAL SUBMISSION

To assure that research proposals submitted to the Authority are complete, an administrative check of the following items should be made before mailing.

- ___ Project CIP Code Category (Appendix I).
- ___ Completed Cover Sheet and a project summary of fewer than 200 words (Appendix II).
- ___ All required signatures (principal investigator, co-principal investigator, and authorizing official) on cover sheet (Appendix II).
- ___ Human Subjects Certification, if required.
- ___ Recombinant DNA Certification, if required.
- ___ Detailed description of the proposed research.
- ___ Bibliography of pertinent literature.
- ___ List or description of available facilities and major items of equipment to be used in the proposed research.
- ___ Budget in requested format (Appendix III), including brief description and justification of major items of requested equipment.
- ___ Source and amount of required matching funds.
- ___ Vita of all senior personnel.
- ___ Seven copies of the proposal, including the original signed copy.
- ___ Final Summary Report Statement.
- ___ Page limitation not exceeded.

APPENDIX I - PROJECT CIP CODE CATEGORY

AGRICULTURE

- 01. Agribusiness & Agricultural Production
 - 01.01 Agricultural Business & Management
 - 01.02 Agricultural Mechanics
 - 01.03 Agricultural Production
 - 01.04 Agricultural Products & Processing
 - 01.05 Agricultural Services & Supplies
 - 01.06 Horticulture
 - 01.07 International Agriculture
 - 01.99 Agribusiness & Agricultural Production, Other
- 02. Agricultural Sciences
 - 02.01 Agricultural Sciences, General
 - 02.02 Animal Sciences
 - 02.03 Food Science
 - 02.04 Plant Sciences
 - 02.05 Soil Sciences
 - 02.99 Agricultural Sciences, Other
- 03. Renewable Natural Resources
 - 03.01 Renewable Natural Resources, General
 - 03.02 Conservation & Regulations
 - 03.03 Fishing & Fisheries
 - 03.04 Forestry Production & Processing
 - 03.05 Forestry & Related Sciences
 - 03.06 Wildlife Management
 - 03.99 Renewable Natural Resources, Other

COMMUNICATIONS

- 10. Communication Technologies
 - 10.01 Communication Technologies

COMPUTER & INFORMATION SCIENCES

- 11. Computer & Information Sciences
 - 11.01 Computer & Information Sciences, General
 - 11.02 Computer Programming
 - 11.03 Data Processing
 - 11.04 Information Sciences & Systems
 - 11.05 Systems Analysis
 - 11.99 Computer & Information Sciences, Other

ENGINEERING

- 14. Engineering
 - 14.01 Engineering, General
 - 14.02 Aerospace, Aeronautical, & Astronautical
 - 14.03 Agricultural Engineering
 - 14.04 Architectural Engineering
 - 14.05 Bioengineering & Biomedical Engineering
 - 14.06 Ceramic Engineering
 - 14.07 Chemical Engineering
 - 14.08 Civil Engineering
 - 14.09 Computer Engineering
 - 14.10 Electrical, Electronics & Communications
 - 14.11 Engineering Mechanics
 - 14.12 Engineering Physics
 - 14.13 Engineering Science
 - 14.14 Environmental Health Engineering
 - 14.15 Geological Engineering
 - 14.16 Geophysical Engineering
 - 14.17 Industrial Engineering
 - 14.18 Materials Engineering
 - 14.19 Mechanical Engineering
 - 14.20 Metallurgical Engineering
 - 14.21 Mining & Mineral Engineering
 - 14.22 Naval Architecture & Marine Engineering
 - 14.23 Nuclear Engineering
 - 14.24 Ocean Engineering
 - 14.25 Petroleum Engineering
 - 14.26 Surveying & Mapping Sciences
 - 14.27 Systems Engineering
 - 14.28 Textile Engineering
 - 14.99 Engineering, Other
- 15. Engineering & Engineer-Related Technologies
 - 15.01 Architectural Technologies
 - 15.02 Civil Technologies
 - 15.03 Electrical & Electronic Technologies
 - 15.04 Electromechanical Instrumentation & Maintenance Technologies
 - 15.05 Environmental Control Technologies
 - 15.06 Industrial Production Technologies
 - 15.07 Quality Control & Safety Technologies
 - 15.08 Mechanical & Related Technologies
 - 15.09 Mining & Petroleum Technologies
 - 15.99 Engineering & Engineer-Related Technologies, Other

HEALTH

- 17. Allied Health
 - 17.01 Dental Services
 - 17.02 Diagnostic & Treatment Services
 - 17.03 Medical Laboratory Technologies
 - 17.04 Mental Health/Human Services
 - 17.05 Miscellaneous Allied Health Services
 - 17.06 Nursing-Related Services
 - 17.07 Ophthalmic Services
 - 17.08 Rehabilitation Services
 - 17.99 Allied Health, Other
- 18. Health Science
 - 18.01 Audiology & Speech Pathology
 - 18.02 Basic Clinical Health Sciences
 - 18.03 Chiropractic
 - 18.04 Dentistry
 - 18.05 Emergency/Disaster Science
 - 18.06 Epidemiology
 - 18.07 Health Sciences Administration
 - 18.08 Hematology
 - 18.09 Medical Laboratory
 - 18.10 Medicine
 - 18.11 Nursing
 - 18.12 Optometry
 - 18.13 Osteopathic Medicine
 - 18.14 Pharmacy
 - 18.15 Podiatry
 - 18.16 Population & Family Planning
 - 18.21 Prosectorial Science
 - 18.22 Public Health Laboratory Science
 - 18.23 Toxicology (Clinical)
 - 18.24 Veterinary Medicine
 - 18.99 Health Sciences, Other

HOME ECONOMICS

- 19. Home Economics
 - 19.05 Food Sciences & Human Nutrition

LIFE SCIENCES

- 26. Life Sciences
 - 26.01 Biology, General
 - 26.02 Biochemistry & Biophysics
 - 26.03 Botany
 - 26.04 Cell & Molecular Biology
 - 26.05 Microbiology
 - 26.06 Miscellaneous Specialized Areas, Life Sciences
 - 26.07 Zoology
 - 26.99 Life Sciences, Other

MATHEMATICS

- 27. Mathematics
 - 27.01 Mathematics, General
 - 27.02 Actuarial Sciences
 - 27.03 Applied Mathematics
 - 27.04 Pure Mathematics
 - 27.05 Statistics
 - 27.99 Mathematics, Other

MULTI/INTERDISCIPLINARY STUDIES

- 30. Multi/Interdisciplinary Studies
 - 30.01 Biological & Physical Sciences
 - 30.03 Engineering & Other Disciplines
 - 30.06 Systems Science
 - 30.99 Multi/Interdisciplinary Studies, Other

PARKS & RECREATION

- 31. Parks & Recreation
 - 31.01 Parks & Recreation, General
 - 31.02 Outdoor Recreation
 - 31.03 Parks & Recreation Management
 - 31.04 Water Resources
 - 31.99 Parks & Recreation, Other

PHYSICAL SCIENCES

- 40. Physical Sciences
 - 40.01 Physical Sciences, General
 - 40.02 Astronomy
 - 40.03 Astrophysics
 - 40.04 Atmospheric Sciences & Meteorology
 - 40.05 Chemistry
 - 40.06 Geological Sciences
 - 40.07 Miscellaneous Physical Sciences
 - 40.08 Physics
 - 40.09 Planetary Science
 - 40.99 Physical Sciences, Other
- 41. Science Technologies
 - 41.01 Biological Technologies
 - 41.02 Nuclear Technologies
 - 41.03 Physical Science Technologies
 - 41.99 Science Technologies, Other

PSYCHOLOGY

- 42. Psychology
 - 42.01 Psychology, General
 - 42.02 Clinical Psychology
 - 42.03 Cognitive Psychology
 - 42.04 Community Psychology
 - 42.05 Comparative Psychology
 - 42.06 Counseling Psychology
 - 42.07 Developmental Psychology
 - 42.08 Experimental Psychology
 - 42.09 Industrial & Organizational Psychology
 - 42.10 Personality Psychology
 - 42.11 Physiological Psychology
 - 42.12 Psycholinguistics
 - 42.13 Psychometrics
 - 42.14 Psychopharmacology
 - 42.15 Quantitative Psychology
 - 42.16 Social Psychology
 - 42.99 Psychology, Other

APPENDIX II

CIP Code _____

ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY
COVER SHEET

1. Name of Institution: _____
2. Principal Investigator: _____
3. Mailing Address and Telephone Numbers for:
Institution Contract Office Principal Investigator

(____) _____ (____) _____
4. Title of Project: _____
5. Type of Grant (circle one): Basic Research Applied Research
6. Requested Amount: \$ _____
7. Project Summary:

Authorizing Official
Institution: _____
Date: _____

Principal Investigator
Department: _____
Date: _____

Signature of the application denotes that these individuals have read and understand the guidelines governing the award of these grants and agree to the conditions.

APPENDIX III

ORGANIZATION			
PROJECT DIRECTOR			
SALARIES, WAGES, AND FRINGE BENEFITS	ASTA	MATCH	TOTAL
TRAVEL			
MATERIALS AND SUPPLIES			
EQUIPMENT			
CONTRACTUAL SERVICES, OTHER			
TOTAL DIRECT COSTS			
INDIRECT COSTS			
TOTAL COSTS			

APPENDIX III

INSTRUCTIONS FOR USE OF SUMMARY PROPOSAL BUDGET

I. GENERAL

Completion of this summary does not eliminate the need to document and justify fully the amounts requested in each category. Such documentation should be provided on additional page(s) immediately following the budget in the proposal and should be identified by line item. The documentation page(s) should be titled "Budget Explanation Page."

Revised budgets must be signed and dated by the authorized organizational representative and principal investigator and submitted in at least the original and two copies.

II. BUDGET LINE ITEMS

Matching Funds. In the space under "Match," specify the source of the matching funds.

Salaries, Wages, and Fringe Benefits. On the Budget Explanation Page, list individually all senior personnel and rates of pay.

Travel. Address the type and extent of travel and its relation to the project. Itemize by destination and cost and justify travel outside the United States and its possessions and Canada. Include dates of foreign visits or meetings. Fare allowances are limited to round-trip, economy rates.

Materials and Supplies. Indicate types required and estimate costs.

Equipment. While items exceeding \$500 and two years' useful life are defined as permanent equipment, it is only necessary to list item and dollar amount for each item exceeding \$1,000. Fully justify.

Contractual Services. Indicate name, daily compensation (limited to \$245/day), and estimated days of service, and justify.

Other. Itemize and justify. Include computer equipment leasing, publication costs, etc.

Indirect Costs. Limited to fifty percent of the approved Health and Human Services schedule on Applied Research Grants. ASTA will not fund indirect costs on Basic Research Grants.

DEFINITIONS & EXPLANATORY REMARKS

The "personnel categories" are defined as follows:

Senior Personnel

"Principal Investigator(s)" are individuals(s) so designated by the grantee institution.

A "Faculty Associate" (faculty member) is an individual--other than the Principal Investigator--who is considered by the performing institution to be a member of its faculty or who holds an appointment as a faculty member at another institution, and who will participate in the project being supported.

Other Personnel

A "Postdoctoral Associate" is an individual who received a Ph.D., M.C., D.Sc., or equivalent degree less than five years ago, who is not a member of the faculty of the performing institution, and who is not reported under Senior Personnel above.

"Other Professional" is a person who may or may not hold a doctoral degree or its equivalent, who is considered professional and is not reported as a Principal Investigator, faculty associate, post-doctoral associate, or student. Examples of persons included in this category are doctoral associates not reported above, professional technicians, mathematicians, physicians, veterinarians, system experts, computer programmers, and design engineers.

A "Graduate Student" (Research Assistant) is a part-time or full-time student working on the project in a research capacity who holds at least a bachelor's degree or its equivalent and is enrolled in a degree program heading to an advanced degree.

An "Undergraduate Student" is a student who is enrolled in a degree program (part-time or full-time) leading to a bachelor's degree.

"Support Personnel" include persons working on the project in a nonresearch capacity, such as secretaries, clerk-typists, drafters, animal caretakers, electricians, and custodial personnel, regardless of whether they hold a degree or are involved in degree work.

APPENDIX IV

INSTRUCTIONS FOR FINAL PROJECT REPORT

This report is due within sixty days after the expiration of the award. It should be submitted in two copies to:

Dr. J. P. Gentry
Vice President Research
Arkansas Science & Technology Authority
100 Main Street, Suite 450
Little Rock, Arkansas 72201

Instructions for Part I:

These identifying data items should be the same as on the award documents.

Instructions for Part II:

The final summary (about 200 words) must be self-contained and intelligible to a scientifically literate reader. Without restating the project title, it should begin with a topic sentence stating the project's major thesis. The summary should include, if pertinent to the project being described, the following items:

- * The primary objectives and scope of the project.
- * The techniques or approaches used only to the degree necessary for comprehension.
- * The findings and implications stated as concisely and informatively as possible.
- * The potential contributions of the project results to the economic development of Arkansas.

The Authority may disseminate the project summary. Authors should also be aware that the summary may be used to answer inquiries by nonscientists as to the nature and significance of the research. Scientific jargon and abbreviations should be avoided.

FINAL PROJECT REPORT

PART I—PROJECT IDENTIFICATION INFORMATION

Institution and Address

Award Period	
From	To

Cumulative Award Amount

Project Title

PART II—SUMMARY OF COMPLETED PROJECT (FOR PUBLIC USE)

Principal Investigator/Project Director Name (*Typed*)

Principal Investigator/Project Director Signature

Date



ARKANSAS SCIENCE & TECHNOLOGY AUTHORITY

100 Main Street, Suite 450, Little Rock, Arkansas 72201 (501) 371-3554

RESOLUTION NO. 89-16

PROVIDING FOR THE ESTABLISHMENT OF AN AD HOC NOMINATING COMMITTEE BY THE BOARD OF DIRECTORS OF THE ARKANSAS SCIENCE AND TECHNOLOGY AUTHORITY.

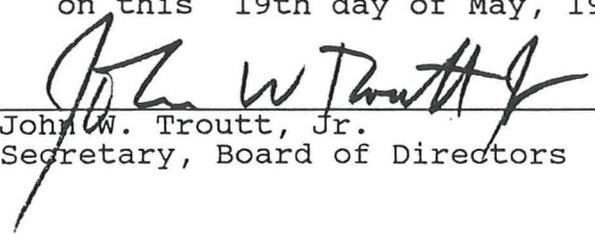
WHEREAS, Sections 15-3-101 through 15-3-123 of the Arkansas Code of 1987 Annotated requires the annual election of the officers from the members of the Authority's Board of Directors; and

WHEREAS, the Bylaws of the Arkansas Science & Technology Authority require the Board of Directors to prescribe by resolution the name, charge, and number of members of committees;

NOW, THEREFORE, BE IT RESOLVED THAT THE FOLLOWING MOTION SHALL BE RECOGNIZED AS POLICY FOR THE BOARD OF DIRECTORS, THEREIN:

THAT there is established a Nominating Committee as an ad hoc committee of the Board of Directors, composed of not more than three past chairmen of the Board, appointed by the Chairman to provide guidance and counsel to the Authority's Board of Directors; that the Nominating Committee shall submit its report to the Board at the Board's next regularly scheduled meeting; and that the Nominating Committee shall cease to exist upon its submitting to the Board of Directors its nominating report.

APPROVED by the Board of Directors
on this 19th day of May, 1989.



John W. Troutt, Jr.
Secretary, Board of Directors